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A Competency Based, Field Centered, Systems Approach to Elementary Teacher Education. Volume I: Overview and Specifications. Final Report.

Northwest Regional Educational Lab., Portland, Oreg.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No-BR-8-9022

Pub Date Oct 68

Contract-OEC-0-8-089022(010)

Note-151p.

EDRS Price MF-\$0.75 HC-\$7.65

Descriptors-Behavioral Objectives, Behavior Standards, Cost Effectiveness, Decision Making, *Educational Specifications, *Elementary School Teachers, Evaluation, Individualized Instruction, Information Processing, Instruction, Interpersonal Competence, Laboratory Training, Learning Processes, Management, *Models, Noninstructional Responsibility, Practicums, Professional Education, Program Proposals, *Systems Approach, *Teacher Education Curriculum

Identifiers-*ComField Model Teacher Education Program

This main volume (SP 002 155-SP 002 180 comprise the appendixes to this volume) explains the ComField (competency based, field centered) Model--a systems approach to the education of elementary school teachers which entails specifications (1) for instruction and (2) for management of the instructional program. In an overview, the ComField Model is described as a process; the conceptual frameworks on which it is based are detailed; and specifications for instruction and management are outlined. Part 1 provides specifications for the instructional program in terms of (1) entry behaviors, (2) instructional competencies (three phases include foundations, laboratory, and practicum), (3) noninstructional competencies, (4) facilitating competencies, and (5) the personalization of professional competencies. Part 2 details specifications for program management, including explanations of the nature of the management system--instruction, policy, adaptation, program execution, supply, personnel, research and development, costing, information transmission, and evaluation. Factors involved in implementing a ComField based program, including commitment, resources, adaptability, and time, are considered in Part 3. ED 018 677 is a related document. (SG)

PA-24
OE-BR

ED026305

FINAL REPORT

Project No. 89022
Contract No. OEC-0-8-089022-3318(010)

A COMPETENCY BASED, FIELD CENTERED,
SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

Volume I--Overview and Specifications

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Submitted for a Consortium of
Institutions and Agencies by the
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October 1968

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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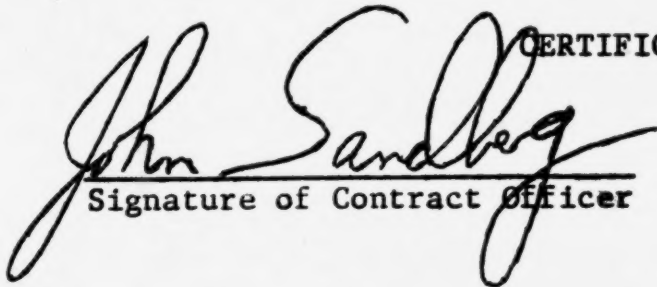
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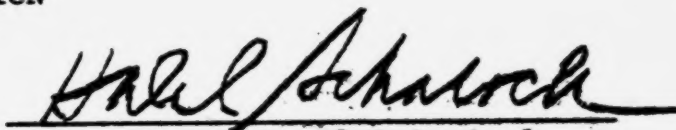
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POTENTIALS

Swiftly emerging potentials characterize this modern technological society. Opportunities for children and youth are unprecedented. Research indicates that we must activate the abilities and aspirations of children early if they are to fulfill their potentials. It is to this end that we have designed our program for the preparation of elementary school teachers.

The program is rooted in a respect and regard for the differences among future teachers. It recognizes that different people learn in different ways and at different speeds. Most of all, it recognizes individuality.

PREFACE

On November 9, 1967 representatives from 26 colleges and universities in the Northwest Region of the United States (Alaska, Idaho, Montana, Oregon, Washington), five State Departments of Education, and the Teaching Research Division of the Oregon State System of Higher Education met at the Northwest Regional Educational Laboratory to discuss the feasibility of responding jointly to a U.S. Office of Education request to develop specifications for a model teacher education program. The meeting was initiated by the Northwest Regional Educational Laboratory in an effort to assist the several institutions in the area planning to submit proposals individually. After considerable discussion the group agreed:

1. to join as a consortium in submitting a proposal to develop specifications for a model of a teacher education program (See p. iii-iv)
2. to work toward the development of a model that was competency based and field centered (ComField); that is, a model that required prior to certification the demonstration in a school setting of the competencies needed as a teacher
3. to link with industry in the development of the model
4. to establish procedures which would bring broad, regional representation to the development of the model
5. to establish a mechanism which would keep all participating institutions abreast of work on the model, and
6. to appoint a regionally representative writing group to develop the proposal

It was also agreed that participation in the consortium did not bind an institution to the adoption of the model.

Two factors were central throughout the discussion and were probably responsible for the decisions reached:

1. the recognition that the development of a model of the kind anticipated was a task of sufficient magnitude and complexity as to require resources beyond those generally found in a single institution, or beyond those available to academic institutions generally, and

2. the experience of several members of the consortium in the development of such a program

While moving to industry and a regional base provided the resources needed for the project, it complicated the task of carrying it out. To maximize the strengths inherent in a consortium approach, resources had to be widely sought and institutions broadly represented, yet the specific task of building the model and then describing it had to be done by relatively few persons if it were to be done effectively. To realize these two aims the program was organized into regionally based task force groups, with clearly specified missions, and a central coordinating body. This latter body, called the Executive Council, was responsible for coordinating the work of the task forces, synthesizing their efforts, and preparing the present report. (See p. ii) Advisory to the Council was a Regional Advisory Committee, composed of representatives from a wide range of educational agencies in the Northwest. (See p. v) The organization of the project is presented schematically in Figure 1.

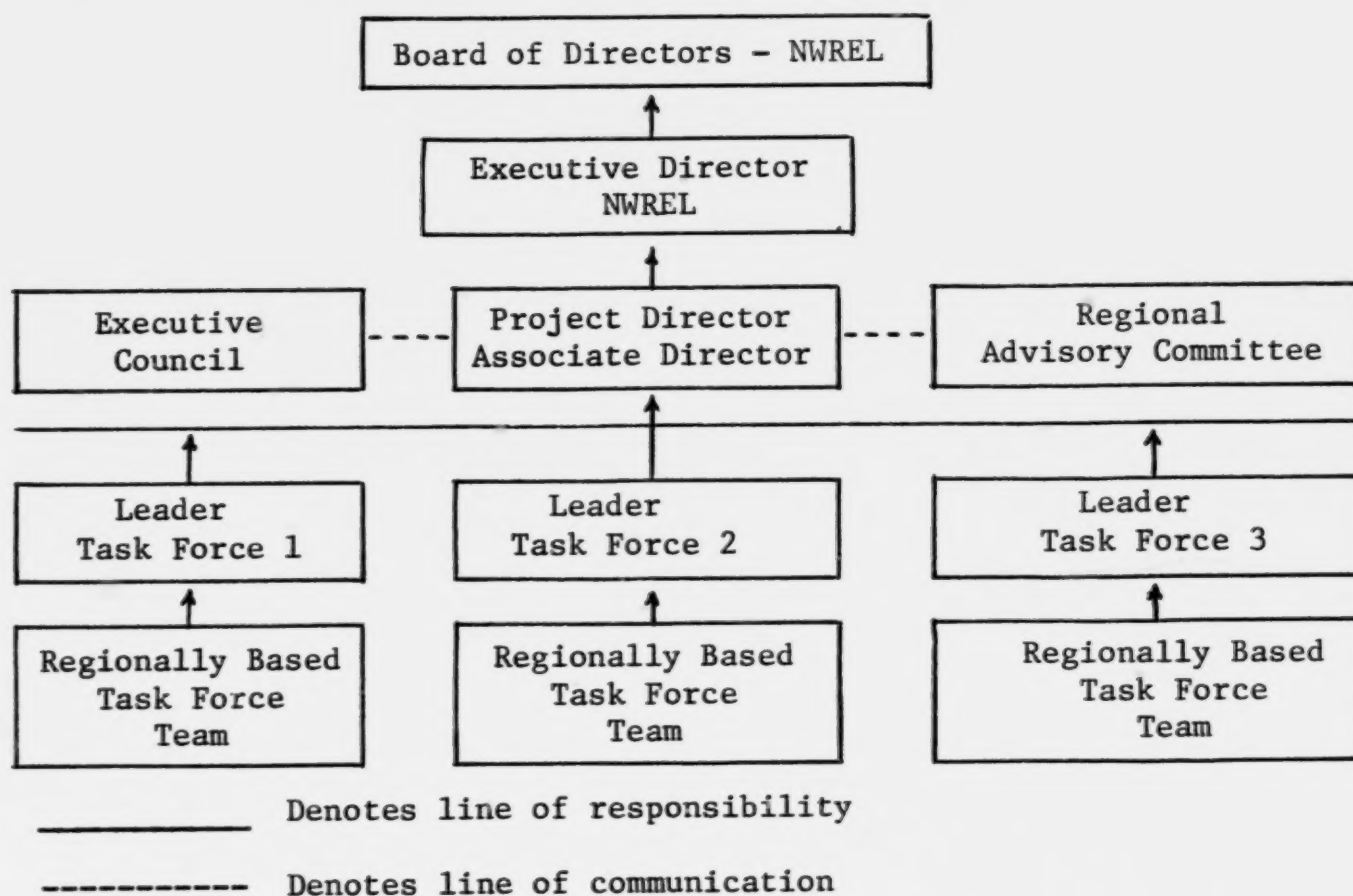


Figure 1. The organizational plan followed in the development of the ComField Model Teacher Education Program.

Two additional groups contributed to the development and reporting of the model. These were the "model critique" teams at Monmouth, Oregon and at Ellensburg, Washington. (See p. viii) critique team consisted of one or more colleges that train early childhood and elementary school teachers, and at least two public school systems which host student teachers from those institutions. As the first draft of the report was prepared persons from these two teams read it and offered suggestions as to how it might be modified as to content and readability.

Four kinds of products have evolved from the work of the Consortium: 1) general specifications for the model, 2) specifications for the application of the model to specific teacher education programs, 3) statements of rationale in support of both sets of specifications, and 4) exemplars that illustrate how various elements within an operational teacher education program might look if they were designed according to the specifications. In reviewing these products the reader should keep in mind the interpretations by the ComField planners of the meaning of the concept "specifications." Broadly speaking specifications refer to a set of constraints by designating what is to be included in a process or thing and what is to be excluded from it. On the surface, this sounds simple enough, but it is complicated by the fact that the nature of the product or process to be developed sets constraints upon the nature of the specifications that are to be drawn up for it. If a product is a specific dam, for example, at a specific location on a specific river, and the dam has a specific set of functions to perform, specifications have to be written to take all of these factors into account. If, on the other hand, the product is to be a model of a dam that can be built under a variety of conditions and that is to serve a variety of functions then specifications are of quite a different nature. In the opinion of the planners of ComField, specifications for the ComField model were to resemble specifications for the model of a dam; the charge was to develop specifications for a model of a teacher education program that could be applied in a wide variety of specific situations rather than to develop a situation-specific, operational, "model" teacher education program. Given this interpretation two levels of model specifications have been developed: 1) those defining the general features of the model, and 2) those defining its application to situation-specific programs. The former set constraints upon the latter, and the latter set constraints upon the developers of a specific, operational program, but they do not dictate the specifics within those constraints. The specifics of any program must be the prerogative of those immediately responsible for its development.

In reading the specifications two factors need to be kept in mind: 1) that the model was developed from the point of view of an open resource base, that is, without the constraints of presently available resources, and 2) that the model was developed through consensus by persons with widely differing background and expertise. As such it has built into it a fairly high degree of internal and external validity. The model should still be viewed, however, as one in evolution for it represents only an integration of the best thinking that the people responsible for its development could bring to it at a given point in time. As experience with it grows, and as the knowledge base on which it rests changes, it will also change.

Two arguments led to the decision to develop the model from the point of view of an open resource base: 1) in planning a model program, planners should not be constrained by what is, though obviously they must ground their plans in what can be, and 2) the development of an exciting, potentially powerful model can help in bringing about what can be. The latter argument is based on the assumption that if the persons responsible for the finance of teacher education can be shown concretely what will and what will not be obtained for so many dollars, and what difference the alternative levels of support will make in the lives of children, the resource base for teacher education may more nearly parallel need. Whether this assumption has merit is yet to be seen, but on the surface, and in the minds of legislators and many taxpayers, it warrants testing.

The work of the Consortium is reported in three volumes. VOLUME I contains the OVERVIEW AND SPECIFICATIONS. VOLUME II contains APPENDICIES A through L. VOLUME III contains APPENDICIES M through Z. The first volume describes the model, the rationale that supports it, and the specifications which derive from it. The second and third volumes contain supplementary material and exemplars which illustrate how various elements within an operational teacher education program might appear if they were developed according to the specifications established by the model.

Sections of the report have been written by different people. (See pp. vi-vii) That which appears in VOLUME I has been closely coordinated, and as such represents a relatively consistent statement. That which appears in VOLUMES II and III, on the other hand, has had little coordination, and as such has little internal consistency so far as style or terminology is concerned. The contents are consistent with the model, however, and since they reflect the involvement of persons throughout the region in the project, the diversity represented is seen as a strength as well as a limitation. Sections of the report carry the names of the persons primarily responsible for their writing.

H.D.S.
J.R.H.

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A COMPETENCY BASED, FIELD CENTERED
SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

OVERVIEW

OVERVIEW

H. Del Schalock

Introduction to the ComField Project

If the aim of teaching is learning then there should be evidence that teachers can bring about appropriate learning in children before they assume responsibility for it in the classroom. The aim of the ComField model is the development of a teacher education program that generates this kind of evidence.

To realize this aim the ComField model specifies that each prospective teacher demonstrate the ability, under both simulated and live classroom conditions, to effect changes in the behavior of pupils that reflect the outcomes desired for them. In addition, the ComField model specifies that each prospective teacher demonstrate that he can effectively perform the noninstructional tasks required of him in a school setting, for example, conferencing with parents or working with research and evaluation teams; that he demonstrate that he can effectively use interpersonal or group process skills to facilitate the application of instructional and noninstructional competencies; and that he demonstrate that he has integrated all professional competencies into a unique and personally relevant teaching style.

Procedurally, the ComField model specifies that "instructional systems" will be employed to bring about professional competencies and their personalization; that instruction within these systems will be individualized with respect to point of entry into the curriculum, pacing, sequencing, information processing preferences, etc.; and that a computer based information management system will be used to handle the frequent and diverse demands upon information created by the above. Two additional procedural requirements are specified: cost/benefit data is to be provided for all aspects of the program, and an adaptive mechanism is to be developed to insure the continuous modification of the program in light of evidence as to its costs, effectiveness and appropriateness. A management model designed to implement these procedures within participating colleges and schools is specified.

A schematic representation of the major components within the ComField model appears as Figure 1.

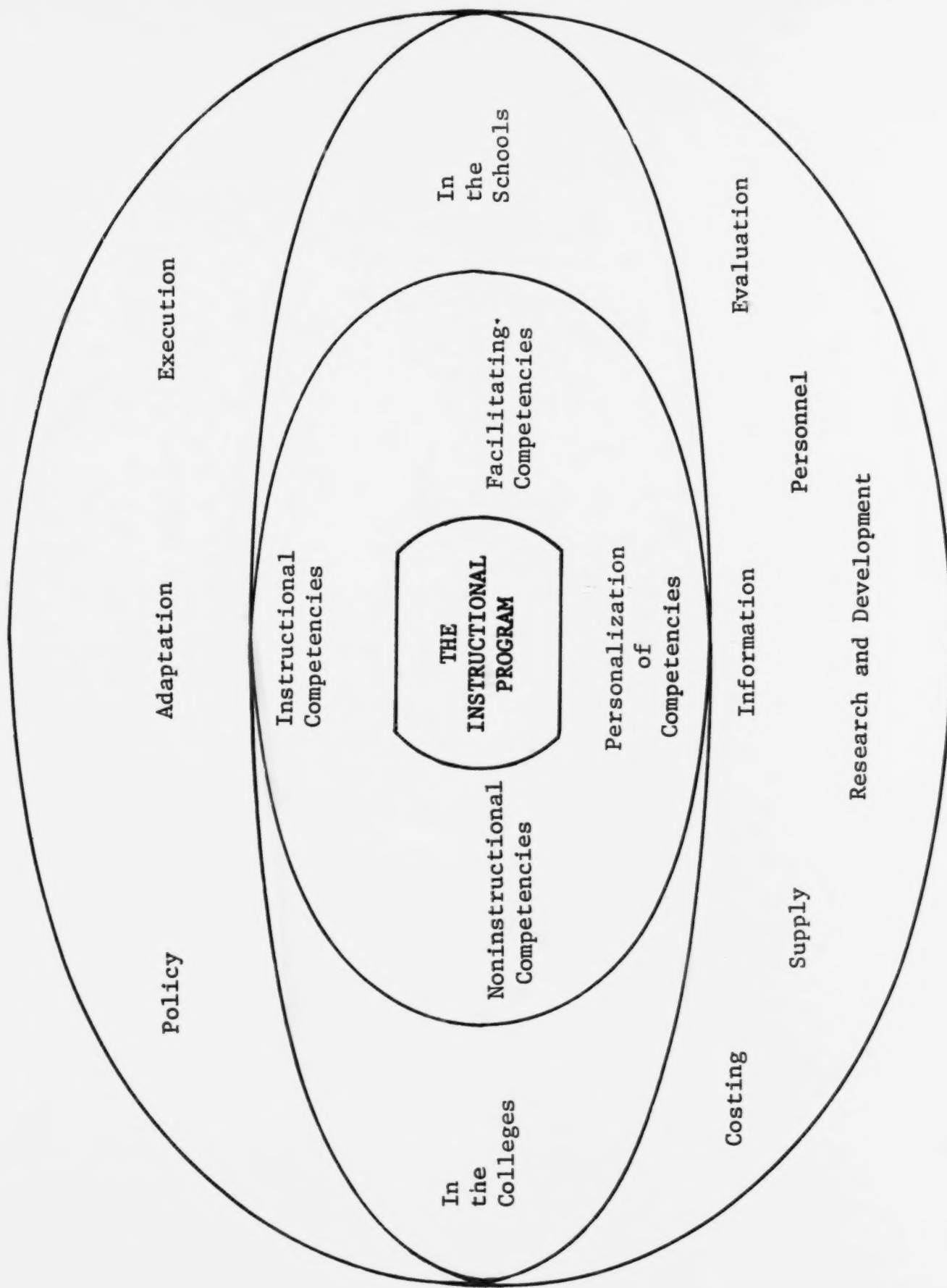


Figure 1. A schematic representation of the ComField Model.

The Model as a Process

Each of the functional parts within the ComField model, as well as the model as a whole, has three characteristics:

- 1) it is designed to bring about a specified and measureable outcome;
- 2) it is designed so that evidence as to the effectiveness with which it brings about its intended outcome is continuously available; and
- 3) it is designed to be adaptive or corrective in light of that evidence.

This is the case whether the part in question is an instructional system, the procedure developed to personalize all professional competencies, the instructional program as a whole, or the cost/effectiveness function. As such the model represents a process or way of proceeding. It is "goal oriented," characterized by "systems design" principles, "corrective feedback loops," etc. In short, it is a process that requires its user to a) know what it is that he wants to accomplish, b) order events in such a way that he has some probability of accomplishing it, c) assess whether these events do in fact accomplish that which they are intended to accomplish, and d) if they do not, modify them until they do. This process is represented schematically in Figure 2.

While the incorporation of this process permits a ComField based program to realize its objectives with a known degree of reliability, continuously adapt to needed change, etc., its greatest power probably lies in its generalizeability to the behavior patterns of prospective teachers. As students move through a ComField based teacher education program they are not only made aware of the process by being continuously subjected to it in their own learning, but they are also required to reflect the process in their preliminary teaching. In order to move through the program they have to establish desired pupil outcomes, order events to bring them about, assess progress to see if desired outcomes are being reached, and, if they are not, modify events until they are. A major assumption within the model is that the continuous demonstration of this pattern of behavior by prospective teachers will lead to the ultimate goal of any teacher education program, namely, the development of generally adaptive, self-directed career teachers.

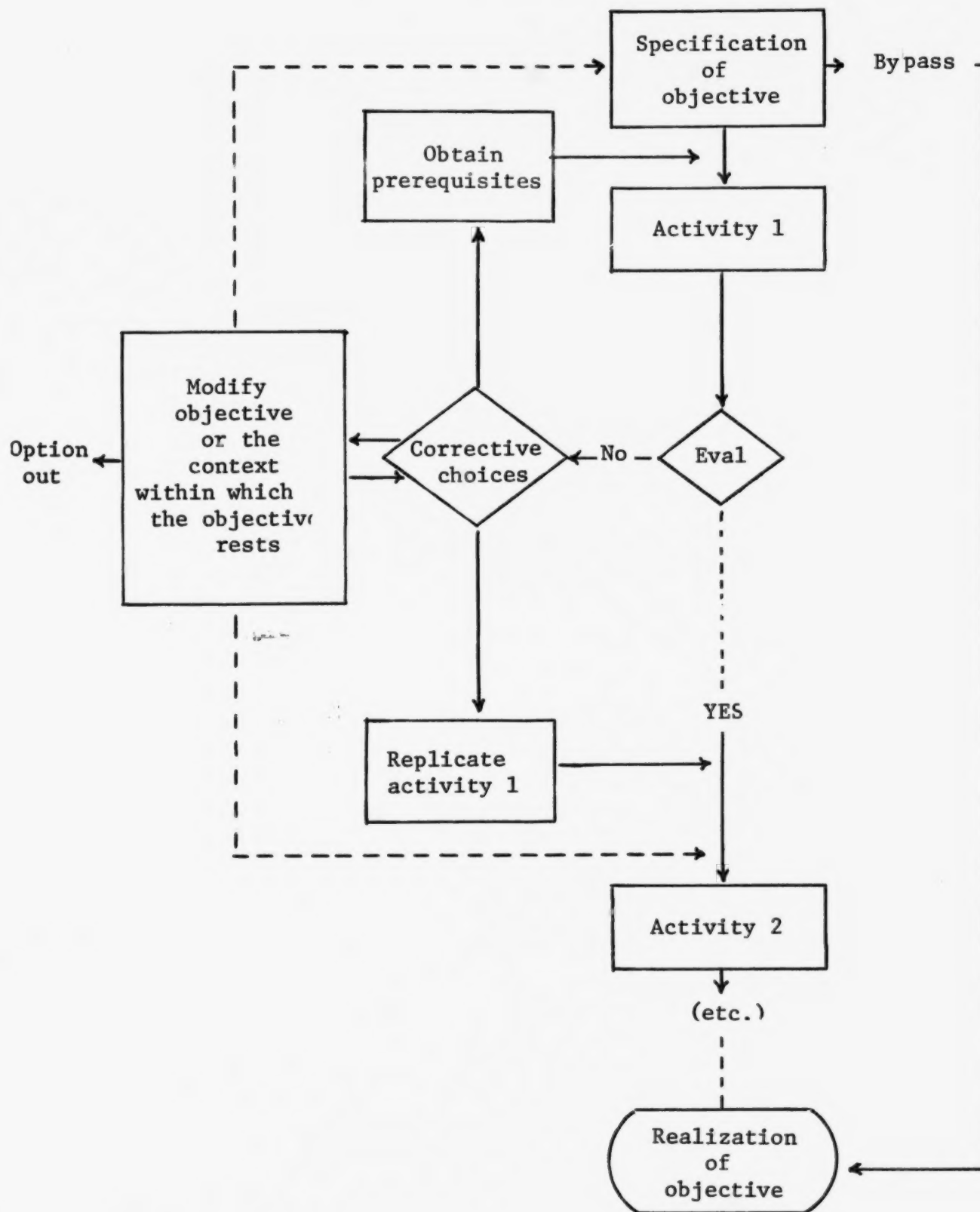


Figure 2. A schematic representation of the adaptive process reflected throughout the ComField model.

The Conceptual Framework Underlying the Model

Ten propositions provided the base from which the model was developed. These were:

- 1) that the objectives of a teacher education program should be specified in terms of the competencies needed by teachers to bring about the outcomes desired in pupils;
- 2) that overt behavior acceptable as evidence of given teaching competencies should be specified;
- 3) that systems design principles should be used in the development of instructional experiences to bring about the mastery of teaching competencies;
- 4) that there should be evidence that professional competencies are integrated into a unique and personal "teaching style," and that a student should be able to be provided a rationale for the application of that style in any given situation;
- 5) that the desired teaching competencies should be demonstrated under laboratory conditions prior to the assumption of supervised responsibility for the learning of children in the schools, and that they should be demonstrated to criterion under classroom conditions prior to assuming full responsibility;
- 6) that the instructional experiences that lead to both the development and personalization of competencies should be individualized with respect to point of entry into the curriculum, pacing, sequencing, information processing preferences, etc.;
- 7) that cost/benefit data should be provided on all aspects of such a program;
- 8) that an adaptive mechanism should be developed to insure the continuous modification of such a program in light of evidence as to its cost, effectiveness, and appropriateness;
- 9) that a computer based information management system should be used so as to effectively meet the frequent and diverse demands for information within such a program; and
- 10) that a model should be developed for the management or execution of such a program that insures as far as possible that it reach the objectives set for it.

Some of these commitments were related to the matter of instruction and some to the matter of management or administration. As a result two inseparably related but distinct models were developed: 1) a model for a competency based, field centered instructional program, and 2) a model for a management system which provides the support functions needed by such a program if it is to operate. These are viewed as totally interdependent models and without them both the ComField model is meaningless. Both models carry detailed sets of specifications. The rationale that underlies each is reviewed separately in the pages which follow.

Rationale Underlying the Development of the ComField Instructional Model

Instructional Guideline 1. The content of a teacher education program should be derived systematically.

The first step in the systematic development of a teacher education program is to specify the outcomes that such a program should achieve. At one level this leads to outcome statements such as "effective teaching," or "the development of effective teachers." These are not specific enough for purposes of program design, however, for the term teaching may be used to describe the actions of persons who decide who is to be taught or what is to be taught; or it may describe the actions of persons who guide learners in face-to-face situations. A better definition is "the preparation of persons who can bring about learning in children," or more exactly, "the preparation of persons who can bring about appropriate changes in pupil behavior." When the purpose of a teacher education program is defined in this manner, a basis for the evaluation of teaching and teacher education is set. (For further explication of the basis for evaluation, see Guideline 2, p.8.)

Having established the prime objective of a teacher education program, the next step is to determine how this objective is to be brought about. In terms of a systematic analysis, this requires four interrelated steps:

- 1) specification of the pupil outcomes desired;
- 2) specification of the conditions by which each outcome can be realized;
- 3) specification of the competencies needed by teachers to provide the conditions that are needed for the realization of each outcome; and
- 4) specification of the conditions by which the needed teacher competencies can be realized.

The logic of such an analysis is straightforward: if one knows the pupil outcomes wanted, and knows what it takes to get them, it should be possible to (a) specify the competencies needed on the part of the teachers to bring given outcomes about, and (b) build a teacher education program that will lead to the development of these competencies. This rationale, as it pertains to the development of a curriculum for a teacher education program, is outlined schematically in Figure 3.

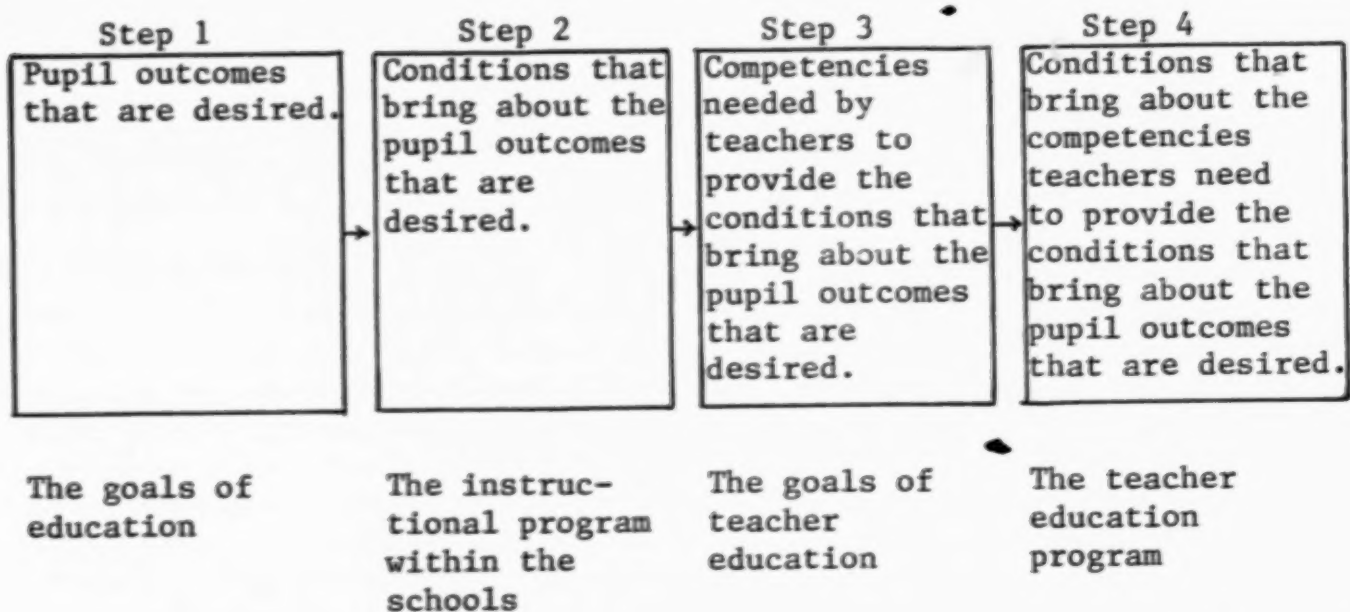


Figure 3. A model to be followed in identifying the curriculum of a teacher educational program.

Recognizing the prime objective of teacher education as the preparation of persons who have the ability to bring about appropriate changes in pupil behavior does not eliminate the need to establish other objectives. Teachers must perform tasks that are supportive of their ultimate purpose, for example, conferring with parents or working cooperatively with a research team, and a teacher education program must provide them the competencies to do so. This leads then to another step in the systematic analysis of teacher education, namely, specification of the tasks that teachers need to perform in support of their primary function. Once this is done it needs to be followed by the logical analysis of the competencies it takes to perform them and the instructional conditions required to bring these competencies about. In combination the competencies teachers need to perform their primary and supporting tasks provide the basis for determining the content of a teacher education program.

A complicating factor in a systematic analysis of teacher education is the matter of change. Desired pupil outcomes change, knowledge of the conditions which bring about these outcomes changes, supporting tasks change, etc. Given the element of change, it follows that

teacher education programs must be planned with an eye toward it. Specification of desired learner outcomes has to reflect not only what is presently known about human development, or what is urgently needed by society, but also by what human beings and the social system are likely to need in the future. The specification of tasks supportive to a teacher's primary function suffers the same dilemma. While there obviously are no clear answers to such questions, the designer of teacher education programs must make systematic and educated guesses about them.

Instructional Guideline 2. The objectives of a teacher education program should be defined in terms of overt behavior that is acceptable as evidence of the realization of those objectives.

In order to know whether an instructional program is effective there must be a way to determine whether it reaches its objectives. This requires not only the explication of objectives, but also an explication of the behavior that one is willing to accept as evidence of those objectives. When definition progresses to this level, assessment becomes possible. Given the constraints of Guideline 1, the behaviors that define the objectives of a teacher education program are either those that lead to appropriate changes in the behavior of pupils or those that lead to success in the pursuit of tasks supportive to behavioral change in pupils.

A complicating factor in specifying the behaviors that one is willing to accept as evidence of the realization of a program objective is the fact that behavior is always situation specific. Operationally this means that the content and strategy involved in instructional behavior must always be defined in terms of their appropriateness to a) a given pupil outcome for b) a given pupil or set of pupils in c) a given instructional setting. The appropriateness of an instructional act in the abstract is a meaningless concept. The variables that need to be considered in judging the appropriateness of an instance of instructional behavior are presented schematically in Figure 5.

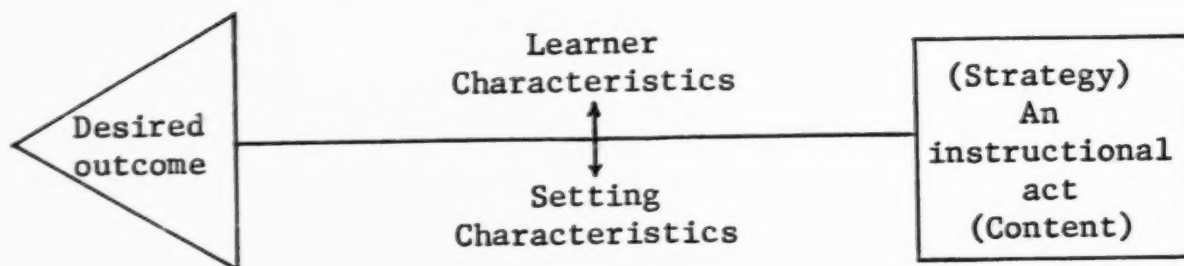


Figure 4. Variables to be considered in judging the appropriateness of a teaching act.

The same rationale applies when judging the appropriateness of a teacher's noninstructional acts: they are always situation-specific, and as a consequence they must always be judged in terms of the outcomes to be achieved by the act, the characteristics of the person to whom the act is directed, and the characteristics of the setting within which the act occurs.

Instructional Guideline 3. Systems design principles should be used in developing learning experiences which lead to the mastery of teaching competencies.

The goal of teaching is learning. This is the case whether teaching is taking place in the second grade or the sophomore year, and whether its focus is mathematics or the preparation of teachers. Because it is behaviorally based, persons adopting the ComField model are in the unique position of being able to insist that known kinds and amounts of learning take place as a consequence of instruction. To give instruction the wherewithal to meet such a demand, the ComField model specifies that instruction should make use of what has come to be known as "instructional systems technology."

An instructional system is an empirically developed set of learning experiences designed to bring about a given outcome for a given class of learners with a given degree of reliability. It involves a systematic analysis of that which is to be learned, a systematic structuring of it from the learner's point of view, and the empirical development of a set of learning experiences which move the student step by step through the structure. Instructional systems are always designed with multiple entry points and multiple paths to pursue, thus permitting students to enter them at levels commensurate with background and progress through them in ways commensurate with learning style. An instructional system is also always dependent upon overt behavior for evidence of the realization of the objectives set for it. In this sense the methodology is a logical extension of Guidelines 1 and 2.

Emphasis upon an instructional systems approach should not be taken to mean that instruction becomes simply a matter of students interacting with electronic media or teaching machines. The systems approach makes use of all instructional strategies that have value in bringing about a given learning outcome. Special lectures, small group discussions, reading, observation of films or real life settings, laboratory simulations, and microteaching experiences are as acceptable to an instructional systems design approach as they are to current educational practice--so long as they are organized around the development of explicit performance outcomes that relate to explicit tasks that the prospective teacher must perform. A major strength of the

instructional systems approach is that each system has built into it provision for review, revision and modification, and thereby correction, if performance from it is below the minimum acceptable level.

Instructional Guideline 4. Provision should be made for individual differences in learning.

Individual differences in the learning patterns or preferences of students in a teacher education program must be more than recognized; they must be taken into account fully in the design of instructional experiences. Operationally this means that instructional systems must be designed with multiple entry points and multiple "critical paths" along which students may move; that multiple media forms be employed so that information processing preferences can be pursued; that rate of progress through a system or through the full contingent of systems be under the control of the student, and that the sequencing of instructional systems be determined as much by the ability to perform as by "curricular structure."

Instructional Guideline 5. Provision should be made to enhance differences in learning outcomes and to help these differences be shaped into personally relevant teaching styles.

Not only do prospective teachers learn differently, but they learn different things and they put together similar things in different ways. Competency A for one teacher, for example, may be translated into instructional behaviors x, y, and z; for another it may be translated into behaviors v, w, and x—yet both teachers may be equally successful in bringing about a desired outcome in pupils. In planning a competency based teacher education program, differences in the expression of competencies must be encouraged and provision must be made whereby these differences can be integrated into an idiosyncratic teaching style.

The adoption of a behaviorally based program of instruction, or the use of instructional systems that "are designed to produce a given outcome with a given degree of reliability," does not require that students emerge from the program as carbon copies. While it is true that each student must be able to perform given teaching competencies to criterion, there are different ways in which this can be done. In ComField each student is encouraged to seek out the way which is most appropriate to him as an individual. This process has come to be called the "personalization" of teaching competencies and refers generally to the process by which a prospective teacher internalizes the instructional competencies he masters, gives them value, and integrates them into a unique style or pattern that fits him as a person.

Three provisions are made in the model for the personalization process:

- 1) fostering an understanding of one's self,
- 2) continuous opportunity to explore the value or meaning or relevance of particular competencies for one's self,
- 3) freedom and encouragement to develop a style of teaching that is in concert with one's self.

Operationally, these provisions are to be used in two somewhat different ways. First, they form the basis for a set of instructional systems designed to initiate the process of self-understanding, commitment and search for teaching style. Second, and more importantly, they constitute an integral part of every instructional system that is designed to bring about a given professional competency. As a student moves through such a system he always has the option of pursuing the meaning of the competency for himself personally, his commitment to it, and how he can integrate it into an evolving teaching style. Also each time a competency is assessed it is done so from the point of view of these three factors, as well as its performance qualities. Whenever there is reason to believe that the personalization of a competency is not going well, or whenever the performance of a competency is inadequate, the student is routed through a "corrective decision" loop wherein he may, upon further diagnosis, be routed to any of a variety of corrective experiences. These can vary from conferencing designed to facilitate the personalization process, to cycling through an enabling subsystem, to recycling through the learning experience just attempted. The critical point is that a mechanism to facilitate the personalization process is always available and that its use is mandatory. The relationship between the personalization process and the learning experiences within an instructional system that lead to the development of a professional competency is illustrated schematically in Figure 5.

Instructional Guideline 6. Teaching competencies should be demonstrated to criterion under laboratory conditions prior to the assumption of supervised responsibility for the learning of children in the schools, and they must be demonstrated to criterion under classroom conditions prior to the assumption of full teaching responsibility.

If the aim of teaching is learning, then there should be evidence that teachers can bring learning about before they assume responsibility for the learning of children. At a beginning level, such evidence

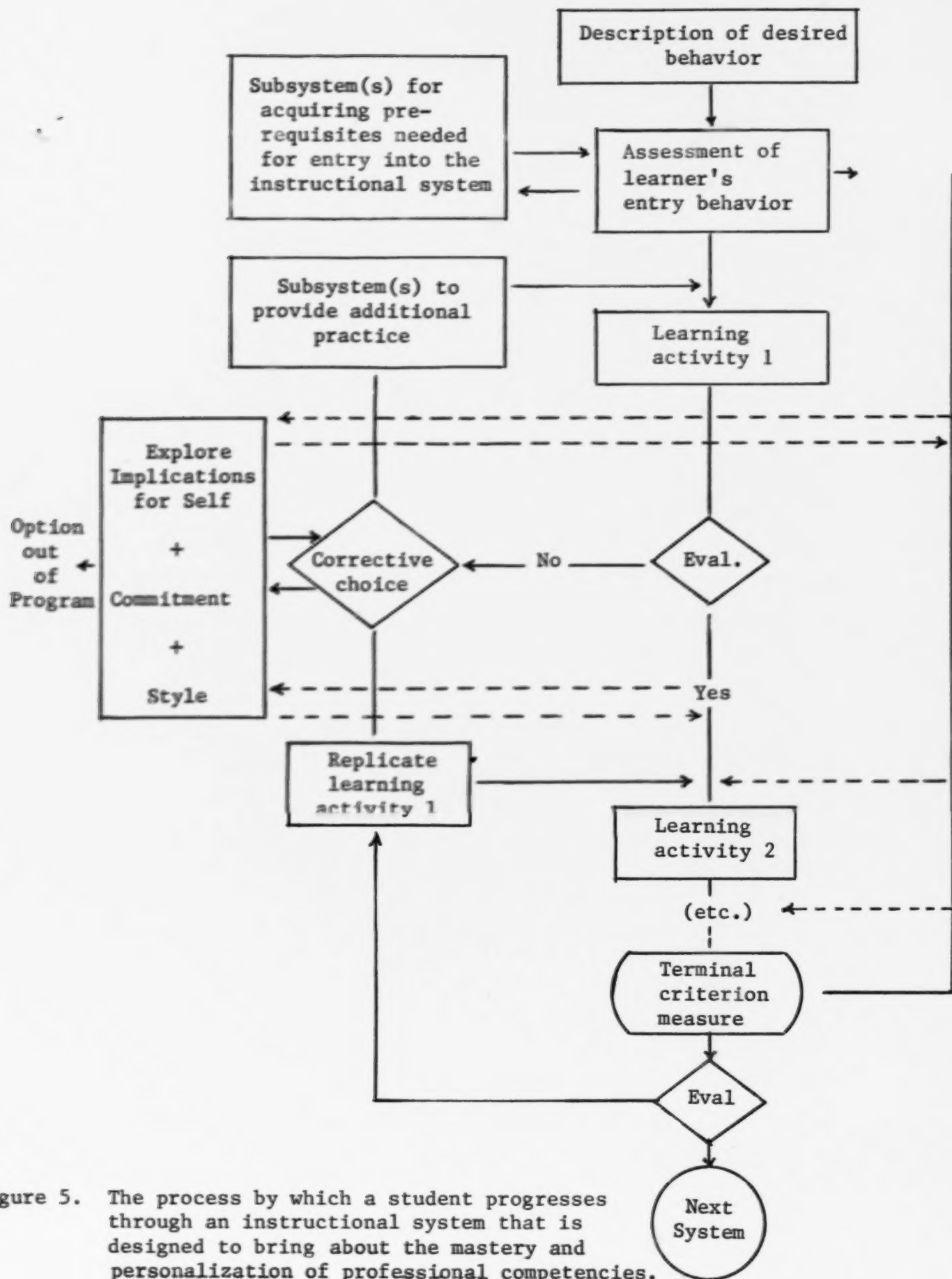


Figure 5. The process by which a student progresses through an instructional system that is designed to bring about the mastery and personalization of professional competencies.

can be obtained under laboratory or simulated conditions. Here competencies can be demonstrated in circumstances where the complexity of the teaching-learning situation can be controlled and the danger of negative consequences for children reduced. Once competencies have been demonstrated, even though they have been done so under simplified conditions, it is reasonable to assume that prospective teachers can enter live classroom situations with supervision and perform reasonably well. Before assuming full responsibility for guiding the learning of pupils, however, the full range of teaching competencies that have been identified as critical need to be demonstrated within the context of the ongoing classroom. Moreover, the full range of competencies needed to perform the noninstructional tasks required within a school situation must also be demonstrated. Certification as a fully responsible teacher can be justified when there is evidence that prospective teachers have both sets of competencies.

The commitment to have prospective teachers systematically demonstrate competencies in the ongoing classroom prior to certification has far reaching implications for the structure and organization of teacher education programs. Operationally it means that a large portion of the time spent in a professional education sequence will be spent in the schools and that teachers within the schools will have to be trained so that they can carry the supervisory demands of the program. It also means that the schools must have greater responsibility and representation in planning and maintaining the program. These factors, in combination with the change demanded by the program on the nature of instruction within the college, will fundamentally alter the organization and operation of teacher education as it is known today.

Rationale Underlying the Development of the Management Model

Management Guideline 1. A systematically designed model to manage a ComField based instruction program should be developed.

Every instructional program has to be managed. In most programs these functions are taken as a matter of course; administrators, registrars, counselors and maintenance personnel are unquestioned elements in program operation. Obviously, in a ComField based program, these same supporting functions must be provided, but because of the individually paced, personalized and largely self-instructional nature of such a program they must be provided in a somewhat different form. A ComField based program also requires that additional functions be available. The demand of the model for continuous program evaluation and adaptation, for example, or for mutually supportive working relationships between schools and colleges, requires that both an

evaluation and a relatively unprecedented adaptive function be built into such a program if it is to operate as planned. As a consequence, specifications for the functions needed in support of the ComField instructional model are critical adjuncts to the instructional model itself.

Management Guideline 2. The systems design principle of corrective feedback should be applied within each of the parts of the ComField model as well as to the model as a whole.

As pointed out earlier the ComField model is an evolving management model as well as the instructional model. In a ComField based instructional program at least four kinds of feedback are needed:

- 1) feedback on the appropriateness of the pupil outcomes that have been selected as guides in determining the competencies to be developed in prospective teachers. Are the ultimate objectives of the program the correct ones?
- 2) feedback on the effectiveness of teachers who have given competencies to bring about outcomes desired in pupils. Are the competencies that have been identified as relevant to given outcomes the correct ones?
- 3) feedback on the effectiveness of instructional systems in bringing about the competencies for which they were designed. Are the procedures used in the teacher education program effective? and
- 4) feedback on the impact of the ComField based program beyond its immediate influence on teachers and pupils. Is the school or larger social system changed as a result of the program?

Feedback on the various components within the management model is relatively simple: is each component within the system performing the function for which it is intended? A major requirement of the management model is provision for the kinds of corrective feedback needed by both the instructional and the management efforts.

Management Guideline 3. Cost data should be provided for all operations within a ComField based teacher education program, as well as the program as a whole.

Two arguments underly this specification: 1) educators have an obligation to provide to taxpayers and legislators cost/benefit information so that they can make informed judgments when asked to

support education; and 2) managers of ComField based programs must have cost/effectiveness information in order to make informed judgments as to program operation, priorities, etc. The commitment requires that a costing function be added to and integrated within the overall ComField Management Model which can meet two demands:

- 1) an accounting of the resource requirements (full system costs) needed to operate and maintain ComField; and
- 2) the provision of cost/benefit and cost/effectiveness statements reflective of system products.

Management Guideline 4. A computer based information management system needs to be developed to serve the ComField Instructional Management Models.

The information demands within a ComField based instructional program are high. As students progress through an instructional system they must have information that permits them to make appropriate choices as to next learning steps; advisors must be able to call up performance histories; etc. Information needs are also high within the management effort: instructional systems development personnel must have performance records for each system and/or sub-subsystem; cost/benefit and program evaluation data must be available upon call to those responsible for the adaptation or execution of the program, etc. To meet these demands a computer based information management system is to be used as the primary means for the storage, retrieval, transmission and display of information within a ComField based teacher education program. A computer system adaptive to "natural language" will be used.

Specifications for the ComField Instructional Model

The guidelines followed in the development of the ComField model dictate in broad outline what the instructional program within the model is to be: e.g., instructional systems are to be designed to bring about competencies in modifying the behavior of pupils, provisions are to be made whereby students can evolve a preferred teaching style, criterion performance is to be demonstrated under live classroom conditions prior to certification. They do not, however, dictate what competencies are to be developed, or how the personalization of competencies are to take place, or when the demonstration of competencies under live classroom conditions are to occur in relation to other aspects of the program. The same thing holds with respect to the management model. A cost/effectiveness and a corrective/adaptive function has to be included, a computer based information management system has to be established, and whatever else that is needed to make the instructional program operate has to be provided, but the guidelines do not dictate in any way how these should work or what they should contain. That is the purpose of specifications.

Two levels of specifications are provided, those that establish the broad parameters of the model and those that translate those parameters into program development. The first has been labeled Model Specifications and the second Program Specifications. Ultimately specifications will have to be established that translate Program Specifications into specifications for the actual operation of a program, but that is a level of detail beyond that to be provided by a model. The aim of this section of the report is to make explicit the Model Specifications and the rationale which underlies them. Specifications at the model level have been prepared for both the instructional and the management models.

Content Specifications

Content Specification 1. The content of the instructional program shall be designed to prepare Instructional Managers for schools in the 1970's.

In order to plan an instructional program meaningfully, some prediction as to the nature and purpose of education in the 1970's and beyond has to be made. Two predictions have been agreed to by the planners of ComField.

1. A functional science and technology of education will evolve, and it will bring with it an educational program that is markedly different from that which is now found in most schools. Two differences are anticipated: 1) the widespread use of pupil-materials instruction, and 2) the application of systems technology in the design of instructional experiences. Out of both will grow the application of "instructional systems" to the education of children.
2. Three major classes of educational specialists are anticipated: 1) instructional analysts, 2) instructional designers or engineers, and 3) instructional managers. As presently conceived the instructional analyst will be the member of the instructional team primarily responsible for identifying the classes of pupil outcomes for which the school should be responsible, and the instructional conditions that bring them about; the instructional designer-engineer will have the task of developing instructional systems to bring these outcomes about; and the instructional manager (IM), will bring the effort of the first two members to bear upon the educative process. The task of the IM is viewed as one of creating and/or maintaining an instructional environment that brings about learning in children. The IM's specific function within the school is likely to be primarily a supervisor of the instructional process rather than the prime manipulator of it. Operationally this means that while while the IM of the future must be able to diagnose learner readiness, prescribe appropriate learning experiences, evaluate their effectiveness and prescribe next learning steps, he must also be able to apply the instructional systems developed by the other members of the educational team, supervise instructional assistants, use electronic and computer media, etc.

On the basis of these predictions, the ComField instructional model was designed to prepare instructional managers. In the future it may be expanded to prepare instructional designer-engineers or instructional analysts, but this is not its purpose at the moment.¹

Content Specification 2. One block of content within the instructional model shall be designed to prepare prospective IM's for their role as facilitators of desired outcomes in children. (Role I of the Instructional Manager.)

In keeping with a systematic approach to program development, two steps are required before being able to specify the content required to prepare the prospective IM for this role: 1) an analysis of the tasks to be carried out within the role, and 2) an analysis of the competencies needed to perform each task.

CONTENT DERIVING FROM TASK ANALYSIS. The products of the task analysis for Role I of the prospective IM are the classes of pupil outcomes to be realized. For purposes of a model these need to be defined extremely broadly, for in the future education is likely to assume more and more responsibility for the development and well-being of children. From this point of view it is critical that prospective IM's become aware of and committed to the full range of outcomes that need to be attended to if children are to reach their full potential. These obviously extend beyond the three R's, and well beyond the familiar threeway classification of cognitive, affective and psychomotor outcomes. Concern needs to be directed to the issues of health, emotionality, identity, sexuality, aggressiveness, tenderness, relatedness and all the other qualities that lead to humanness, as well as to outcomes in the psychomotor, intellectual and attitudinal domains. A first approximation to a taxonomy of pupil outcomes that reflects this breadth appears as Appendix A.

¹The distinction between instructional analysts, designer-engineers and managers has been drawn more sharply here than it is likely to be in actual school operation. It is anticipated that these various personnel will function genuinely as a team, and as such, each member of the team will have an active voice in the pursuit of all three functions. In some instances it may even be that one person will serve several functions, though because of the specialization involved this is not likely to be a common practice.

CONTENT DERIVING FROM COMPETENCY ANALYSIS. Given the pupil outcomes desired, the products of the competency analysis for Role 1 are of two kinds: 1) the conditions required to bring the specified pupil outcomes about, and 2) the competencies required to provide these conditions.

While the rationale for a competency analysis is straightforward, the available information base unfortunately does not permit it. With few exceptions the educational and behavioral science literature is lacking in the kind of tested, empirically based evidence that permits one to identify with any degree of confidence the set of conditions or operations that give rise to specific classes of pupil outcomes. It is difficult, for example, to identify explicitly and with confidence the instructional conditions which permit concepts to be mastered, attitudes to be modified, or chronic anxiety to be reduced. It is even more difficult to specify the conditions for bringing about such outcomes as trust or considerateness or self-understanding, or attempting to specify the conditions for the realization of any outcome specific to a particular kind of learner in a particular kind of instructional setting. As a consequence an alternative strategy was pursued in the identification of content relating to the development of the competencies IM's need to effect appropriate change in the behavior of pupils.

At the first level the strategy involves specifying a model of instruction and deriving from the model the major repertoires of knowledge needed to perform effectively within its context. At the second level it assumes the mastery of these repertoires by prospective IM's and, with appropriate practice, being able to apply them effectively to instruction in an ongoing educational setting. Two factors make this strategy unique.

1. A relatively powerful model of the instructional process was used as a guide in the development of content. The model holds, in effect, that any instructional act depends upon the interaction of five sets of variables: 1) the pupil outcome desired, 2) the characteristics of the learner which interact with instructional conditions to effect outcome, 3) the characteristics of the instructional setting which interact with learner characteristics to effect outcome, 4) the nature of the instructional act per se. As used in ComField, the term instructional act always includes reference to both the content of and the strategy represented by an instructional behavior.

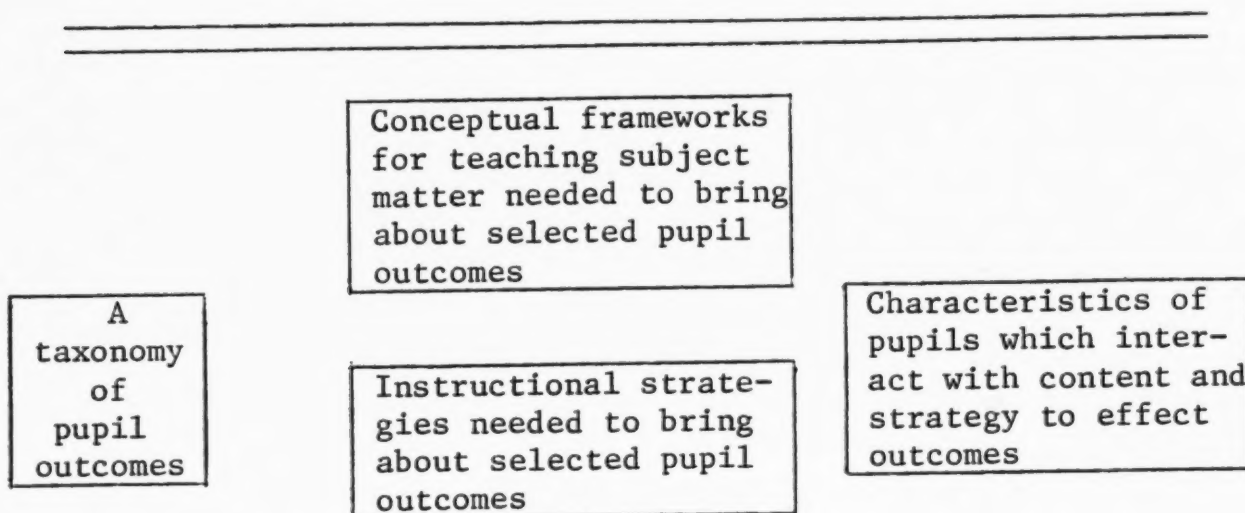
2. Prospective IM's are required to demonstrate that they can make appropriate mixes of these four sets of variables under both simulated and real-life conditions; that is, they have to demonstrate in both the laboratory and on-going classroom that they can bring about appropriate behavior changes in pupils.

Four blocks of content derive from the analysis of Role I: classes of learner outcomes, learner characteristics, the elements or strategies of the teaching act, and conceptual frameworks through which subject matter can be taught.¹ As used in ComField conceptual frameworks represent an effort to bridge the gap between the nature of subject matter, which is obtained outside of the professional education program, and the strategies for teaching it. Two examples of such a framework appear in Appendices B and C. The model specifies that conceptual frameworks be established for all subject matter areas to be taught in early childhood or elementary education programs.

The major blocks of content relevant to the development of competencies needed to perform Role I are summarized in Table 1.

¹Members of the task force responsible for designing program specifications for the development of Role I competencies found it advantageous to include setting variables as a dimension of the instructional environment to be manipulated, and as such included it within the block of content that deals with instructional strategies. To be consistent with task force efforts, only four blocks of content will be considered as deriving from the present analysis of Role I: learner characteristics, instructional strategies, conceptual frameworks for teaching subject matter areas, and learner outcomes.

Table 1. A summary of content in the ComField instructional model that leads to the development of the competencies needed to bring about desired outcomes in pupils.



Content Specification 3. One block of content within the instructional model shall be designed to prepare prospective IM's for their role as performer of the noninstructional tasks required within a school (Role II of the Instructional Manager).

CONTENT DERIVED FROM TASK ANALYSIS. The tasks to be performed by an IM above and beyond his responsibility for the development and well-being of children will depend to a large extent upon the nature of the educational environment in which he is working. As indicated earlier the ComField model is based on the premise that the educational environments of the future will be markedly different than they are today, and as a consequence Role II functions are also likely to be different. Four major changes are predicted for education that will affect Role II functions:

1. increased responsibility for research and evaluation within the context of ongoing educational programs

2. increased individualization of instruction through use of predesigned instructional systems, electronic media and computer technology
3. increased dependency upon instructional aides or assistants
4. participation in administrative decision making regarding policy, curriculum and school management

In addition to these newer tasks, the IM of the future will in all likelihood have to serve many of the same auxiliary functions he performs today, i.e., participation in such administrative functions as record keeping, the management of school facilities, materials and supplies; conferencing with parents; and working with professional education organizations. While the projection of Role II tasks for the IM of the future cannot be done with complete accuracy at this point in time, "educated guesses" can be made. A first approximation at such task analysis appears as Appendix D.

CONTENT DERIVED FROM THE COMPETENCY ANALYSIS. The analysis of competencies needed to perform Role II tasks involves a somewhat different process than that used with Role I. Rather than point to well-defined outcomes as a point of departure, and letting competencies be dictated by what is known empirically about the conditions required to bring them about, Role II tasks can be only generally defined, and the competencies needed to perform them only generally surmised. Working cooperatively with a research team or supervising instructional assistants are cases in point. In this sense competencies in the service of Role II functions serve a broad range of related functions rather than relatively specific ones.

The major blocks of content relevant to the development of competencies needed to perform Role II tasks are summarized in Table 2.

Table 2. A summary of content in the ComField instructional model that leads to the development of competencies needed to perform noninstructional tasks.

A taxonomy of noninstructional tasks to be performed by an instructional manager	Ability to work as a member of a team in research and evaluation, instructional systems development, and supervision of assistants; ability to utilize computers and electronic media in instruction	Ability to conference with parents, work with peers, establish school policy, pursue administrative tasks such as maintenance of records, etc.
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Content Specification 4. The content of the instructional program shall be designed to develop general purpose skills that can enhance or facilitate the application of professional competencies.

The minute-by-minute performance of Role I tasks is dependent to a large degree upon the general adaptive capability of an IM, that is, his ability to collect and process information, generate hypotheses, implement and test the most promising of these, act upon the data that comes from the test, etc., and upon his ability to interact with students individually and in groups. Generally speaking, interpersonal competence depends upon general communication skills, group process skills, conflict management, etc. The performance of Role II tasks carries the same demands. As a consequence an important adjunct to the competencies required by an IM to perform Roles I and II is the development of general purpose competencies that act to enhance or facilitate those that have been described previously.

The major blocks of content that relate to the development of skills that enhance or facilitate the application of Role I and Role II competencies are summarized in Table 3. Exemplary taxonomies of general adaptive competencies and interpersonal competencies appear as Appendices E and F respectively.

Table 3. A summary of content in the ComField instructional model that leads to the development of interpersonal or facilitating competencies.

General adaptive competencies	Interpersonal competencies
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Content Specification 5. The content of the instructional program shall be designed to provide for the personalization of all competencies.

Three factors are considered to be essential in order that the personalization process occur:

1. the development of self-understanding
2. the clarification of commitment to the various professional competencies to be mastered, and
3. the integration of professional competencies into a unique and personally relevant teaching style

Two steps are involved in the personalization process: 1) developing an initial understanding of one's self, one's value structure, and one's orientation to teaching style; and 2) reflecting the professional competencies as they are being developed against this complex of factors. As discussed in Instructional Specification 5, the first step assumes the form of a set of related instructional systems, and the second a set of experiences which parallel all instructional systems that have as their aim the development of professional competencies.

The major blocks of content relevant to the personalization process are summarized in Table 4. Table 5 contains a summary of all of the blocks of content included within the ComField Instructional model.

Table 4. A summary of the content of the ComField instructional model that permits the personalization of professional competencies.

Self- understanding	Commitment	Teaching Style
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Organizational Specifications

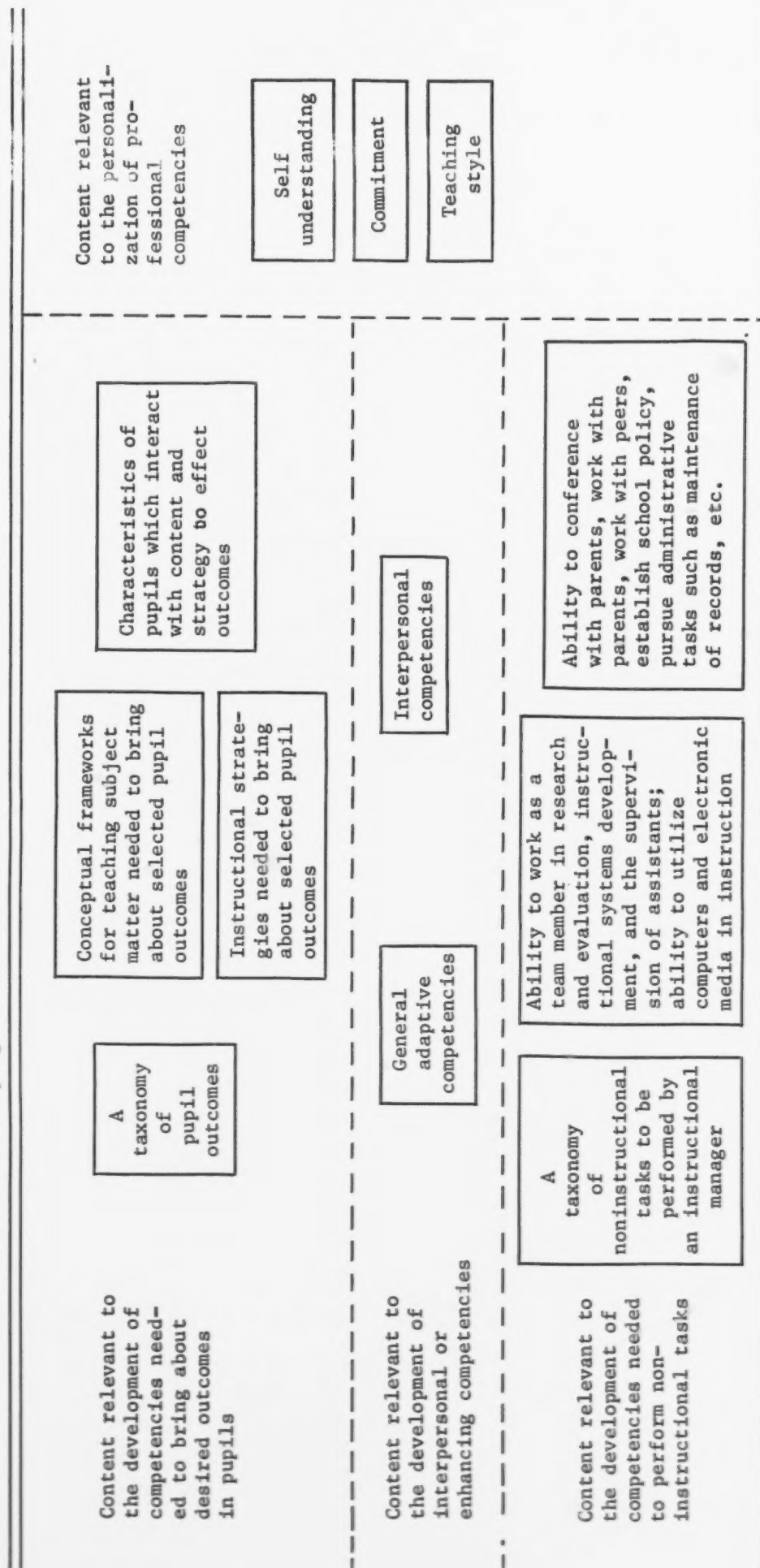
Organization Specification 1. A ComField based instructional program shall be organized into three phases: Foundations, Laboratory and Practicum.

Four major classes of activity dominate a ComField based instructional program:

1. demonstration of instructional and interpersonal competencies under simulated classroom conditions (the Laboratory phase)
2. demonstration of instructional, noninstructional and interpersonal competencies under live classroom conditions (the Practicum phase)
3. demonstration of mastery of the blocks of knowledge prerequisite to 1. and 2. (the Foundations phase)
4. demonstration that all of the above have been integrated into a unique and personally relevant teaching style

Generally speaking, the first three classes of activity follow one another in time; the Foundations phase of the program precedes the Laboratory and the Laboratory precedes the Practicum. This is not a fixed sequence, however, for the program is structured in such a way that students may begin work toward mastery of a competency by attempting its performance in the Laboratory. The basic operating principle underlying the relationship between the Foundations and Laboratory phases of

Table 5. A conceptual framework which summarizes the major blocks of content within the ComField instructional program¹



¹All blocks of content can be adapted equally well to the preparation of I.M.'s at the preschool, primary or elementary levels.

the program is simply one of responding to individual differences in students and empirical evidence as to how a competency seems best to be learned.

The relatively permissive relationship between Foundations and Laboratory is not carried over to either the relationship between Foundations and Practicum or Laboratory and Practicum. While some Foundations work and some recycling to Laboratory experiences may continue throughout the Practicum, there is a rather rigid line between the Laboratory and Practicum. Students must demonstrate competency in bringing about appropriate behavioral change in pupils under simulated classroom conditions before they assume responsibility for their learning in real-life conditions. This is the case even though supervision occurs in the Practicum.

The requirement of competency demonstration in the Laboratory before entry into the Practicum has implications for progress through the program. Passage is dependent upon criterion performance; if a student is able to meet criterion on designated competencies when he enters the program, nothing is to keep him from moving immediately into the Practicum phase. If, on the other hand, he is unable to reach criterion performance, he will never enter the Practicum. This is the case no matter how long he is allowed to remain at the Foundations-Laboratory level. The Com-Field instructional program is a performance based program, not a time or course dependent one.

The Practicum also requires performance to criterion before recognition as a certified career teacher. Like the Laboratory, time or credit hours bear no direct relationship to progress through it. It is different from the Laboratory, however, for it is possible for a prospective IM to remain in the Practicum relationship indefinitely; the only requirement for his remaining there is a school's willingness to continue supervision.

The relationship between the Foundations, Laboratory and Practicum phases of the program is illustrated schematically in Figure 6.

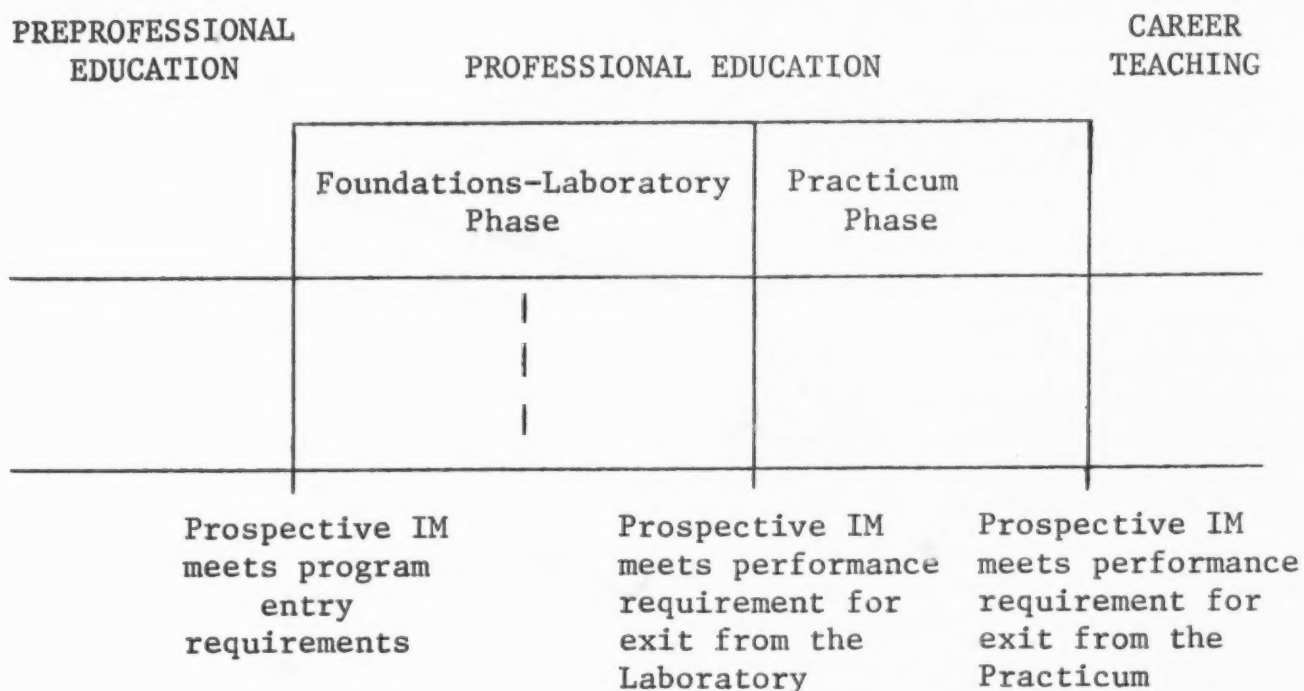


Figure 6. A schematic representation of the relationship between the Foundations, Laboratory and Practicum phases of a ComField based instructional program.

Organizational Specification 2. Four levels of certification shall be incorporated within a ComField based instructional program.¹ 1) a Preparatory Certificate (permits entry into the Laboratory phase of the program); 2) an Initial Certificate (permits entry into the Practicum); 3) a Continuing Certificate (permits entry into the field as a career teacher); and 4) a Consultant Certificate (permits supervision of ComField students within the Practicum phase of the program).

The rationale for the various levels of certification is straightforward: before a student assumes responsibility for the learning of students, even though it may be only in a simulated classroom environment, he should demonstrate that he is able to assume that responsibility. As responsibility increases, demand upon the demonstration of competencies also increases. Certification at the Preparatory level requires evidence that a student has

¹These levels of certification correspond to those proposed by the Washington State Department of Education (see Statements of Standards For Preparation of School Professional Personnel: Fourth Draft).

the knowledge and/or experience that permits him to interact constructively with students; certification at the Initial level requires evidence that he can bring about appropriate changes in the behavior of pupils under simulated classroom conditions; certification at the Continuing level requires evidence that he can bring about appropriate changes in the behavior of pupils under live classroom conditions, perform noninstructional tasks effectively, provide a rationale for his behavior, etc.; and certification at the Consultant level requires evidence that he can effectively supervise prospective IM's in the Practicum.

Organizational Specification 3. The three phases that comprise a ComField based instructional program shall be integrated functionally with the general education requirements of a college and the inservice education requirements of a school.

Any professional education program must fit within the constraints of the institutions within which it rests. Within the college setting the Laboratory and Foundations programs must mesh with the general education requirements of the college. Within the school setting the Practicum program must mesh with the practical demands of instruction. As it is planned, a ComField based program should offer no great difficulties on either count. At the college level it is assumed that the professional education program will require one-third of the time spent in obtaining a baccalaureate degree. At the school level it is assumed that on the average students will spend two to three years in the Practicum. During this time they will be employed as interns. As such, it is assumed that within a reasonable period of time they will return as much to a school as they take from it.

One major complicating factor in the program is the dependency of the Practicum experience upon qualified supervisors in the schools. Supervisors must be able to judge behavior as reflective of criterion standards and they must be able to instruct or advise so as to bring behavior to criterion when it is below standard. In a systematically designed performance based program like ComField these are demanding requirements. As a consequence, one of the major tasks facing institutions implementing a ComField based program is the preparation of a cadre of teachers in the schools that can serve as supervisors in the Practicum program. The basic skills required by a supervisor in the Practicum can be inferred from the description of the basic training model for the Practicum (see Appendix G).

An approximation of the relationship of the phases within a ComField based instructional program to the general education requirements of a college and the inservice education requirements of a school are presented in Figure 7.

Organizational Specification 4. The content of the instructional program shall be ordered systematically into the phases of the instructional program.

The major blocks of content that comprise the ComField instructional model must be ordered across time and in relation to phases of program activity. This has been done and is summarized in Figure 8. By and large this placement follows the logic that underlies movement from the Foundations phase of the program to the Laboratory to the Practicum.

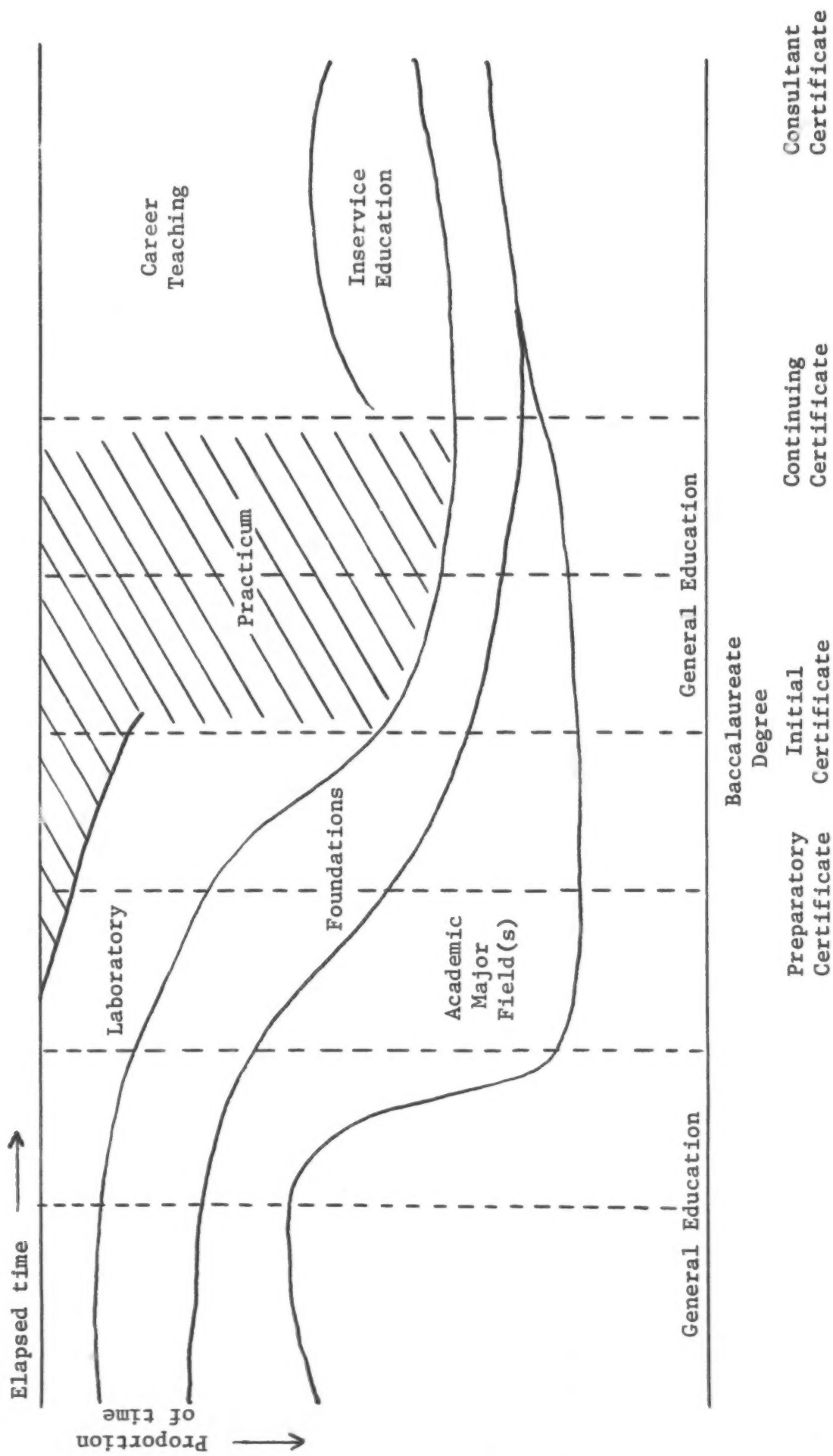


Figure 7. A proportional representation of time spent in the phases of professional development against elapsed time.

GENERAL EDUCATION	PROFESSIONAL EDUCATION			CAREER TEACHING	
	Foundations-Laboratory Phase		Practicum Phase		
Knowledge prerequisite to successful performance in the Foundations- Laboratory Phase of Comfield	Mastery of reper- toires of know- ledge essential to the perfor- mance of the teaching act	Mastery of reper- toires of knowledge dealing with the elements and strategies of the teaching act	Demonstration of compe- tencies which bring about desired learning outcomes in children	Knowledge prerequisite to success- ful perform- ance as a supervising teacher in the Practicum Phase of Com- Field	
			Demonstration of compe- tencies which lead to the successful perform- ance of noninstructional tasks		
		Mastery of repertoires of knowledge essential to the performance of general adaptive and interpersonal skills	Demonstration of compe- tence in the performance of general adaptive and interpersonal skills		
		Mastery of repertoires of knowledge essential to the development of self- understanding, commitment and a preferred teaching style	Demonstration of behav- ior acceptable as evidence of self under- standing, commitment and a preferred teaching style		Demonstration of behav- ior acceptable as evidence of self-under- standing, commitment and a preferred teaching style
Prospective IM meets program entry requirements		Prospective IM meets performance requirements for exit from the Foundations-Laboratory Phase	Prospective IM meets performance requirements for exit from the Practicum Phase		

Figure 8. A conceptual framework for summarizing the organization of the major blocks of content within the ComField instructional model.

Specifications for the ComField Management Model

Content Specifications

Content Specification 1. The management model shall contain the support functions required to permit a ComField based instructional program to operate.

In order to operate, the ComField Instructional Model requires eight support functions: 1) management of the instructional process per se, that is, managing teaching-learning interactions; 2) development of the instructional systems for use in the program; 3) continuous evaluation of the effectiveness and appropriateness of the program as a whole; 4) continuous adaptation of the program in light of its systematic appraisal; 5) program execution; 6) personnel selection and training; 7) maintenance of equipment, supplies and facilities; and 8) maintenance of the information management system needed to permit all of the above to occur.

Content Specification 2. The management model shall contain a supporting function designed to provide cost/effectiveness data on all operations within a ComField based program, as well as the program as a whole.

Two demands are placed upon such a function:

- 1) an accounting of the resource requirements (full system costs) needed to operate and maintain ComField; and
- 2) the provision of cost statements reflective of product costs, effectiveness and impact.

Organizational Specification

Organizational Specification 1. The management model shall be organized in such a way that all functions within it will have as their aim the enhancement of instruction.

Too frequently the founding purposes of programs are lost sight of or are relegated to a position of secondary importance as time passes and the demands of operation take their toll. With so many functional components needed in its support a ComField based program is particularly susceptible to this threat; any of the support components could readily become "an agency unto itself." The management

model presented in Figure 9 is the result of an effort to create an organizational operational framework that protects against this kind of danger.¹ Conceptually, it:

- (a) places the instructional program squarely in the center of things,
- (b) stresses the idea that information and directional influence flows both from the instructional component to the support units and vice versa, and
- (c) provides for a continuous flow of information to the policy-adaptive component and hence to the program execution component.

While such a model cannot guarantee that all units within a ComField based program will act in concert, it does provide an operational framework which at least makes it possible.

¹It needs to be pointed out that the labels within the boxes in Figure 9 refer only to the functions that must go on in the management system; they do not speak to who performs these functions or the manner in which they should be carried out. For example, the box labeled Policy and Adaptation indicates that the functions of establishing ComField policy, translating policy into operational guidelines, deciding upon new and/or modified program operations, carrying out inter- and intra-institutional coordination, etc., must be accomplished. The model does not specify the nature of the organizational structure needed to carry out these functions.

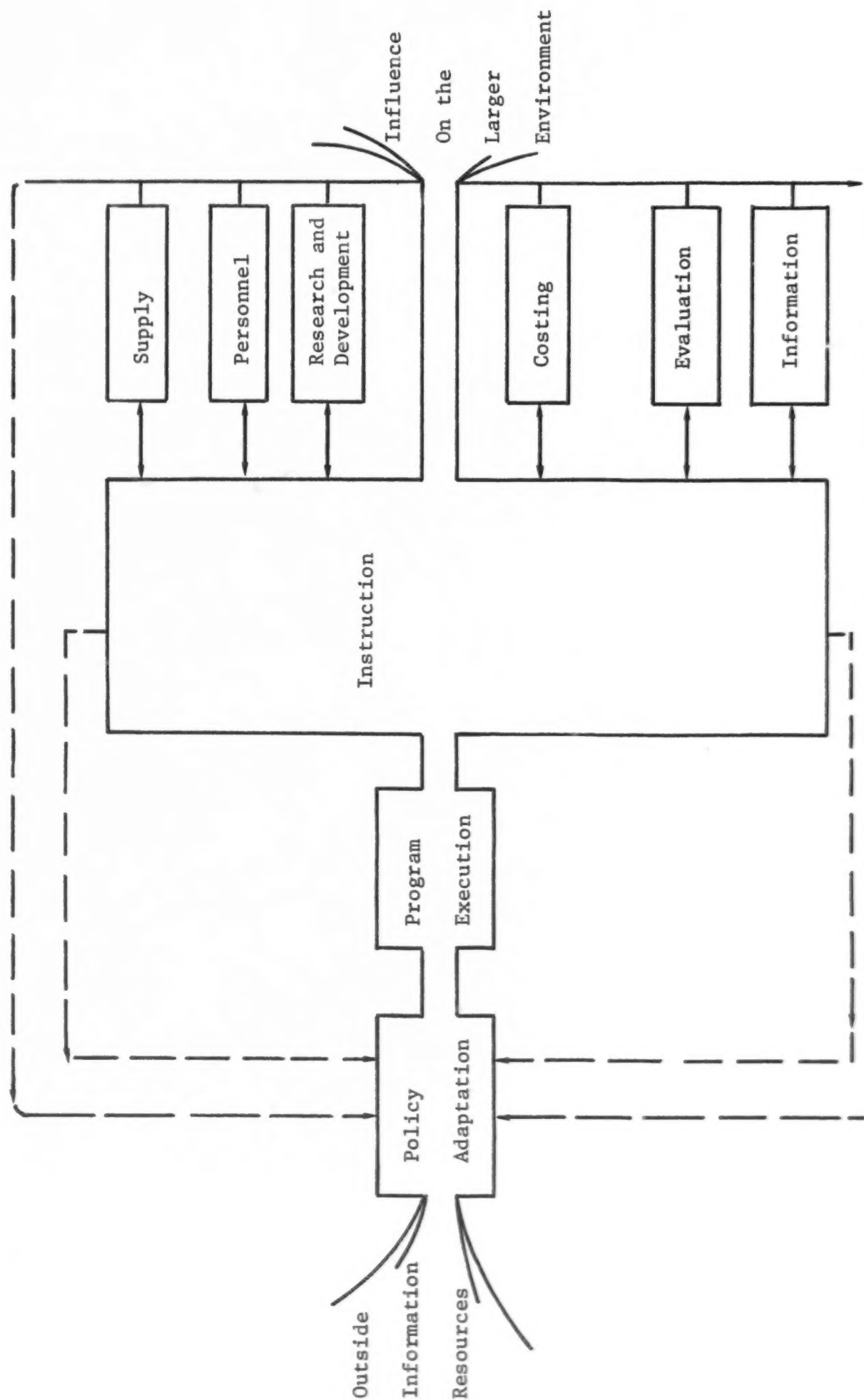


Figure 9. Schematic Diagram of the ComField Management System

A COMPETENCY BASED, FIELD CENTERED,
SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

PART 1.

SPECIFICATIONS FOR A
COMFIELD BASED INSTRUCTIONAL PROGRAM

Specifications for the Development of Instructional Competencies

Herbert Hite

Introduction

ComField is designed to produce instructional managers who elicit appropriate changes in the behavior of their pupils. In other words they are expert in bringing about changes in behavior. Further, they possess the ability to make decisions, based on thorough knowledge, as to the appropriateness of the specific changes they attempt to bring about in learners.

The education of instructional managers is in four stages. (See Figure 8 in Overview, p. 33) In simple terms, this model training program describes as its final product the effective, committed self-adapting professional.

Stage One

In arriving at this product, ComField first of all designs the prerequisites which the candidate for admission to the program needs in order to succeed. These prerequisites constitute entry behavior. They are the knowledge and skills a student needs to be assured of success in the first instructional systems in the professional program.

Stage Two

These Foundation Systems provide the future instructional manager with repertoires of those knowledges and skills which are needed for judging the appropriateness of learning activities. These first Foundation Systems enable the student to recall and use knowledge about the relevant content fields of elementary teaching, about a universe of learning outcomes, about the traits and characteristics of the learners they will confront.

Stage Three

With success in these Foundation Systems, the student enters a unique laboratory in which the student demonstrates competence in all the significant elements of the teaching act. ComField provides instructional systems so that the student may acquire knowledge about these elements of teaching, together with practice in performing these elements under laboratory conditions.

Stage Four

The final stage is practice. Here the beginning instructional manager strives for growth in each of the competencies which were acquired in the laboratory. These elements of teaching are now melded into a continuous pattern of teaching behavior. In effect the instructional manager practices a synthesis of what was learned in the laboratory. In the Practicum the instructional manager progresses through a sequence of stages in which, as he acquires more responsibility and more complex assignments, he demonstrates his increasing capability to synthesize the behavior he has learned. This synthesis takes the form of the ability to perform plus the ability to explain the relationships of his particular teaching acts to the theory of eliciting appropriate changes in behavior.

Graduation from Comfield

Ultimately the instructional managers demonstrate not only technical competence, but a commitment to continuing self-education. Graduation from the ComField model is marked by a continuing certificate which identifies the adaptive decision maker, as possessing both technical competence and a broad base for making instructional choices.

Specifications for the Laboratory

The laboratory is the heart of the instructional program in the ComField model. In the laboratory the student, about to become an instructional manager, has opportunities to practice each of the significant behaviors which are essential for effective instructional management. In the ComField model, the instructional manager is defined as one who elicits appropriate responses from pupils. The laboratory provides that the individual student will progress through instructional systems in which the criterion behaviors are appropriate practice of each significant performance of the effective instructional manager. Systems embody both a variety of the newer technology together with conferences with staff persons and with the student's own peers.

- I. The program shall provide for an analysis of the range of the behaviors of the effective instructional manager (IM).
 - A. Systematic techniques of analysis shall be utilized in arriving at these behaviors.
 - B. The analysis shall result in descriptions of behaviors which are supported by the research on teaching.
 - C. The analysis process shall be carried out to the point of identifying "tasks."
- II. The program shall provide for the tasks to be stated in behavioral terms.
 - A. Performance standards shall be defined for each task objective.
 - B. Tasks shall be ordered so that each relates logically to another; typically, later tasks subsume earlier tasks, and the composite of all the tasks provides evidence that students can demonstrate all the essential behaviors of the effective IM.
- III. The program shall provide for the design of instructional systems to produce the behaviors identified in each task.
 - A. Instructional systems shall include all of the following provisions:
 1. The system first communicates the desired behavior to the student.

2. Preassessment procedures identify entry behavior possessed by the student.
 3. The total task is separated into its component activities and these become steps leading to the criterion behavior.
 4. Media are selected to implement each component activity.
 5. There is an assessment procedure for each component activity.
 6. At each assessment, and at preassessment, there are provided alternatives which will be logical sets of activities as consequences of different levels of behavior at each assessment point. Among the alternatives, the system shall provide the means by which the student may check, with his peers, the values he places on the task.
 7. The system provides an opportunity for the student to demonstrate the criterion behavior, or a reasonable sample of that behavior.
- B. In addition to requiring evidence of technical efficiency the program will require students to demonstrate capabilities for judging the appropriateness of the learning behavior which they specify for their pupils. That is, the criterion behavior for defining objectives will include the provision that the student describes pupil behavior which is appropriate in the following ways:
1. The desired pupil behavior is consistent with current, authoritative descriptions of a content field.
 2. The objective is judged as likely to allow for pupils to succeed (takes into account cognitive prerequisites), and also will fit pupils' perceived purposes (takes into account affective prerequisites).
 3. The objective is an example of a specific taxonomic level and domain, i.e., an example of a specific class of learning outcomes.
 4. Each objective is one of a set of objectives which samples various levels within various domains of behavior, i.e., various classes of learning outcomes.

5. The criteria for evaluating how well the student implements objectives in the laboratory subsumes all of the above four criteria.
- C. Components of the laboratory systems will include examples, or models, of the behaviors specified in each system.
1. These examples may be verbal, mediated or real performances by IM's.
 2. In providing examples of interaction behavior, the program will provide models to show different styles by which IM's perform each interaction behavior effectively.
- D. The criterion level of behavior in laboratory systems, which is the entry level of behavior for the Practicum, is to be characterized as at least "adequate." That is, the criterion level will be at least to the lower limit of the middle or average group of performances of that specific behavior on the part of experienced IM's. (See Figure 10.)

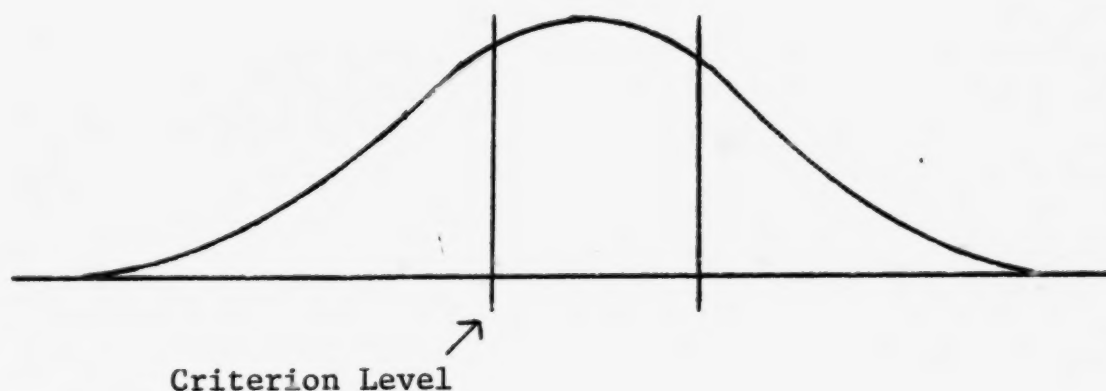


Figure 10. Assumed range of performance by Instructional Managers

- E. The program will provide for the design of at least two models for each of three criterion levels for each terminal behavior specified in the laboratory systems. These models should facilitate appraisal of student criterion behavior in the laboratory.

Specifications for the Practicum

In the Practicum, the instructional manager works with real pupils to elicit responses consistent with these pupils' real purposes. This practice is carried out in school settings and over an indeterminate period of time. Upon entry to the Practicum, the instructional manager is assumed to be competent at criterion levels in each separate element of the teaching act. He has demonstrated his competence by completing the required systems in the laboratory. In the Practicum the instructional manager, in effect, synthesizes the disparate elements of teaching he demonstrated in the laboratory. Evidence of his ability to synthesize consists both of his performance of the entire teaching act and his skill in explaining why his performance is consistent with a rationale of teaching. Also he is able to justify his choices of objectives in terms of the appropriateness of those objectives for content, specific learner outcomes, and characteristics of those particular learners with whom he is working.

The instructional manager, while in the Practicum, is also introduced for the first time to certain behaviors, which seem to the ComField planners, to be appropriate to introduce in this school setting. These behaviors have to do with competence in working with other adults, in addition to working with elementary children. These adults include the instructional manager's colleagues and the other adults in the community. These new competencies constitute the professionalization of the instructional manager, equipping him to carry out his role as a member of the teaching profession.

IV.* The program shall provide for a practicum in which the IM will continue his training in specific teaching competencies and acquire additional competencies which are necessary for the career teacher in the role of IM.

A. Specifications which describe the general nature of the practicum:

1. The practicum shall be designed to accommodate the typical IM for a period of two to three years.
2. The IM shall enter the practicum only after demonstrating adequate performance levels in the criterion behavior of the laboratory.

*Note: The specifications for the development of instructional competencies are numbered consecutively I through XI.

3. The practicum shall be designed so that individual IM's may reach their optimum level, be certified (i.e., retain the "initial" teaching certificate) without attaining the level of performance recognized by a "continuing certificate." (See Specification IV-C, p. 45)
4. The IM graduates from the practicum when he has provided evidence of the following:
 - a. Significant and observable gains in the competencies of effective instructional management.
 - b. Commitment to choosing appropriate instructional objectives and appropriate means of implementing objectives.
 - c. Commitment and skill in analyzing his own performances.
 - d. Commitment to design his own program for continuing his improvement as a career teacher.
 - e. Significant gains in knowledge of the foundations area and knowledge about teaching performances.
- B. The program shall provide for the design of procedures for continuously assessing the performances of the IM in the practicum.
 1. There shall be a record of the entry level of behavior for each IM.
 2. The program shall provide for an evaluation instrument which will enable the IM and the trainer of this IM to appraise performances for each behavior which is required in the laboratory.
 - a. Each cluster of behaviors required in the laboratory will become a criterion in the appraisal instrument.
 - b. The instrument will make possible appraisal of different levels of each criterion behavior.
 3. Appraisal procedures shall be designed so that the IM demonstrates his adaptive capability, based upon his perception of his own performance.

- a. Recordings by transcripts, tape or film will be provided to facilitate appraisal.
 - b. The IM shall have opportunities to study several models--live teachers, mediated models or print--of specific behaviors defined in the appraisal procedures.
 - c. The IM and the trainer of the IM will make regular evaluations of the IM's performance.
 - d. The IM will explicate by stating alternatives to his choices and the reasons why he made a particular teaching decision.
 - e. The trainer of the IM will counsel the IM on the analysis of his performance.
 - f. The IM will define a plan which will utilize the evaluation of the initial performance.
 - g. The trainer will check off each criteria when it is apparent that the IM no longer needs to provide proof of a high level of competence in that specific criterion.
 - h. The IM will explicate his perception of style by identifying and contrasting elements of style in his own performance and in models of similar performances.
- C. The program shall provide for the design of stages of development in the practicum.
- 1. Successive stages will be characterized by a) increased amounts of time and responsibility for learners, and for the analysis and direction of his own teaching; and b) decreased dependence upon observations of other models and conferences with peers and trainers for assessment.
 - 2. The stages of the practicum shall include at least the following stages:
 - a. A preparatory certificate stage beginning with entry to the practicum and ending with an initial certificate. Stages within the preparatory period may be defined.

- b. An initial certificate will mark an important step indicating that the IM is judged capable unsupervised direction of the activities of learners for a substantial amount of time. Institutional authorities shall determine whether or not the initial certificate is a prerequisite to a bachelor's degree.
 - c. The continuing certificate is granted at the conclusion of the practicum, and indicates that the IM is judged to have attained a level of competence such that it is no longer necessary to appraise his effectiveness as an IM.
 - D. The IM shall be required to add to those repertoires of knowledge which are likely to increase his power to make educational decisions.
 - 1. The program shall provide for the definition of evidence which indicates increased ability by the IM to judge pupil behavior in a content field or fields.
 - 2. The program shall provide for the definition of evidence of increased ability to analyze learning outcomes and learner characteristics.
 - 3. The program shall provide for the definition of evidence that the IM has increased his knowledge of himself as a learner.
 - 4. The program shall require the IM to provide evidence of his increased knowledge about essential teaching activities.
 - E. The program shall provide for means of assessing an IM's commitment to career goals.
 - 1. The IM shall be required to demonstrate commitment to choosing appropriate objectives.
 - a. Evidence of this level of commitment will be that the IM chooses an "appropriate" level and an "appropriate" domain of behavioral objectives even when the choice imposes greater costs in time and effort and increased possibility of failure.
 - b. The IM will defend or explain an appropriate objective by comparing this to other alternatives.

- c. The IM shall be required to demonstrate commitment to appropriate means for implementing objectives.
- d. The program shall provide procedures for recording their commitments.

Specifications for the Foundations

Instructional Systems are specified in the ComField model to supply the future instructional manager with foundations of knowledge. The purpose of these foundations is that they will enable the instructional manager to judge the appropriateness of responses that pupils make. These Foundation Systems are the basis upon which the instructional manager makes his educational decision. The ComField model assumes that the instructional manager will be both technically competent and a valuing practitioner.

The nature of any response a learner makes to any move by a teacher will have at least three characteristics.

1. The response is invariably an example of a particular class of learning behaviors such as cognitive behavior or feelings; complex or simple types of behavior; and intellectual or motor skills.
2. Any response always has some content or subject matter quality.
3. A response is always a unique communication which is shaped by a particular learner and his traits and backgrounds. Characteristics of learners are both psychological and sociological.

This stage of the ComField training program, then, consists of three kinds of Foundation Systems--systems to acquire concepts for teaching basic content, knowledge about learning, and knowledge about learners.

The instructional manager in the ComField model will be able to make rational judgments about desired learner responses because the instructional manager possesses these funds of knowledge upon which he can draw.

- V. The program shall provide for the definition of those concepts which the IM requires in order to judge the appropriateness of behaviors in various content fields.
 - A. The program shall provide for the definition of concepts which the IM must be able to recall and use when judging the appropriateness of pupil behavior in reading; other language arts; mathematics; natural sciences including health science, social studies; music; fine and applied arts; and physical education.

1. Only those concepts shall be selected for Foundations which (a) represent clusters of behavior defined by authority (or a synthesis of authorities) to be appropriate for elementary pupils, or (b) represent concepts or skills uniquely associated with communicating that particular content.
- B. Having provided for concepts for the Foundation Systems on Content, the program shall provide for stating behaviors of students which will constitute evidence of ability to acquire and use the concepts. These statements become the objectives for Instructional Systems. (Same procedure as in Specification II on p. 40)
1. The depth of knowledge--i.e., number and complexity of knowledge behaviors--for these content systems shall be limited to that needed by the instructional manager who elicits and reinforces appropriate behaviors, but who does not determine which behaviors by pupils are needed.
 2. Affective behaviors shall be specified which will be acceptable as evidence that the IM values the tasks involved in completing the Content Systems--i.e., willingness to demonstrate desired behaviors in each content field.
- C. The program shall provide for the design of Instructional Systems for students to demonstrate the appropriate objectives in the Content Fields. (Same procedure as in Specification III-A on pp. 40-41)
- VI. The program shall then provide for the repetition of the steps described in Specifications V-A. and V-B. (See pp. 48-49) in order to (a) define behavioral objectives, and (b) design instructional systems for Foundations Learning Outcomes.
- A. Objectives shall describe a universe of classes of learning outcomes, e.g., taxonomies and domains of cognitive behavior, affective behaviors, psychomotor behavior, vital behavior.
 - B. Objectives shall describe behavior on the part of the student which will provide evidence that the student values:
 1. The selection of complex as well as simple behavioral objectives.

2. The selection of affective and/or vital behavior as well as cognitive or psychomotor behavior.
 - C. Objectives shall describe application as well as recall or knowledge about classes of learner outcomes.
- VII. Repeat steps outlined in Specifications V.A. and V.B. in order to (a) define behavioral objectives and (b) design instructional systems for Foundations on Learner Characteristics.
- A. Foundations shall include physical, mental and social characteristics of learners of all ages.
 - B. In defining objectives, concepts shall be selected which describe all of an authoritative description (or synthesis of authoritative descriptions) of each class of learner characteristics.
 - C. Objectives will specify application as well as recall of knowledge about learner characteristics.
 - D. Objectives will specify behavior by students which will be evidence that students value tasks in this system.
 - E. Instructional systems will include components in which students observe and participate in learning activities--formal and informal--of pupils from different socio-economic backgrounds, especially from backgrounds classified as disadvantaged.
 - F. Instructional systems will require students to make tentative decisions as to:
 1. Ages of pupils they prefer to guide.
 2. School settings in which they prefer to work (i.e., social-economic neighborhoods).
 - G. One subsystem in this Foundation system will deal with the student demonstrating that he can describe his own characteristics as a learner.
 1. Objectives in this subsystem will specify recall and use of concepts which authorities describe as a universe of self-understanding behaviors.

2. Objectives will require students to demonstrate their ability to describe their perceptions of their own behaviors as examples of major classes of self-understanding.
3. Objectives will specify that students verbalize the anticipated outcomes to themselves of each class of systems in the ComField model.

Specifications for Entry Behaviors

Introduction

The purpose of specifying Entry Behaviors is to establish a more systematic base for selecting candidates for the professional instructional program. The Entry Behaviors are simply those abilities to recall facts, use this information, or demonstrate basic skills, each of which is absolutely essential for success in the first instructional systems which form the professional ComField program.

- VIII. The program shall provide for the definition of those behaviors which are essential for students to have in order to achieve objectives in each Foundation System.
 - A. The program shall provide for the definition of the traits of the population whom they assume will demonstrate criterion behaviors, i.e., traits which are prerequisite to initial learning activities in each Foundation System.
 - B. The list of these enabling behaviors constitute requirements for the ComField program.
 - C. Entry behaviors for the subsystem on Self-Understanding will describe personal characteristics needed for ComField.
 - D. The program shall provide for the definition of entry behaviors, cognitive and affective, so that evidence of these behaviors is readily demonstrated by overt, measurable acts.
 - E. Procedures for assessing entry behaviors shall permit candidates to enter particular Foundation Systems at different times.
- XI. The program may specify a formal selection procedure consisting of:
 - A. Demonstrating entry behaviors for the Foundation Systems on Learner Characteristics, Learning Outcomes and at least one Conceptual Framework for a Teaching Area.
 - B. Completing the Instructional Systems for the three Foundation Systems above.

In effect, these behaviors meet requirements for the Laboratory Systems, which may be considered as constituting induction into Instructional Management.

Systematic Analysis of Instructional Management

Defining the Ultimate Product

The first step in systems analysis is to describe as specifically as possible what is to be the ultimate goal of the system. In this case, we are to analyze teaching, so the ultimate goal is effective teaching. The term teaching, however, is one which includes a number of roles and is not a specific enough term for our purposes. The term teaching, as commonly used, may describe the actions of persons who decide who is to be taught, or what is to be taught; or it may describe the actions of persons who guide learners in face-to-face situations. In the ComField model of teaching, the purpose of teaching is to bring about learning. This modest aim is not the universal goal of American education. More often the purposes of teaching may really be such administrative aims as classification of pupils, or moving pupils of a certain age through a grade and content area in a given amount of time. When we define the purpose of teaching as bringing about learning, we set the major parameters for the ComField product.

In this model the ultimate product is the effective instructional manager--one who elicits appropriate changes in the behavior of learners. This description of behavior is perhaps a first step in analysis because the statement limits the term, teacher, to a particular role. Other roles might be those of instructional analyst, instructional designer, etc. In general terms, the ultimate criteria of effective instructional management is that pupils do demonstrate appropriate changes in behavior.

The Discipline of Systematic Analysis

Having defined the product of our system in behavioral terms, our next step is to break down this product into the largest meaningful components we can perceive.

There is a discipline to systematic analysis which requires that we attempt to define all the components and define all the relationships of these components. These requirements dictate that at each level of analysis--each time we take apart the product or products--we define the largest components which we find to be meaningful elements of the original product. By always attempting to identify the largest components, we insure that we will "touch all bases," or not miss meaningful parts to the whole. This identification of largest components also guarantees that we

will successively fit these components together in the several possible relationships which exist, or at least as we can perceive them.

The ideal systematic analysis would result in precisely two components of each product. Two components would be the largest components of one product. An ideal model of systems analysis, then, would be a binary model. (See Figure 11.) In practice, our perceptions do not always result in two meaningful components each time we analyze a given product. The ideal model simply tells us that our judgment is probably fallible and that other attempts at analysis should be undertaken in the future.

A system always includes some self-correcting capability. In the process of systems analysis we have a builtin assessment system which asks these questions each time we take apart an object. Are these really descriptions of the largest meaningful components, and do the components, taken as a whole, equal the original? Human analysts are always limited by the information, or input, with which they work and their capabilities to conceptualize. These limitations simply mean that when the analyst takes apart an object into components he makes a tentative set of judgments and assumes that he will make different judgments given further information and increased capability to conceptualize. The array of components, however, if systematically identified, always tells him how a given judgment relates to the whole system.

First Level of Analysis

The ultimate object of analysis--the effective instructional manager--was first taken apart into seven major components. The analysts worked from information which consisted of abstracts of the literature on the research on teaching which was available to them in a three-month period. Their collective judgment was that the literature suggested these seven components of the behavior--elicit appropriate behavior change:

The effective instructional manager:

1. Defines objectives
2. Adjusts objectives for classes of individual differences
3. Selects instructional strategies
4. Organizes the learning environment

IDEAL SYSTEMS ANALYSIS MODEL

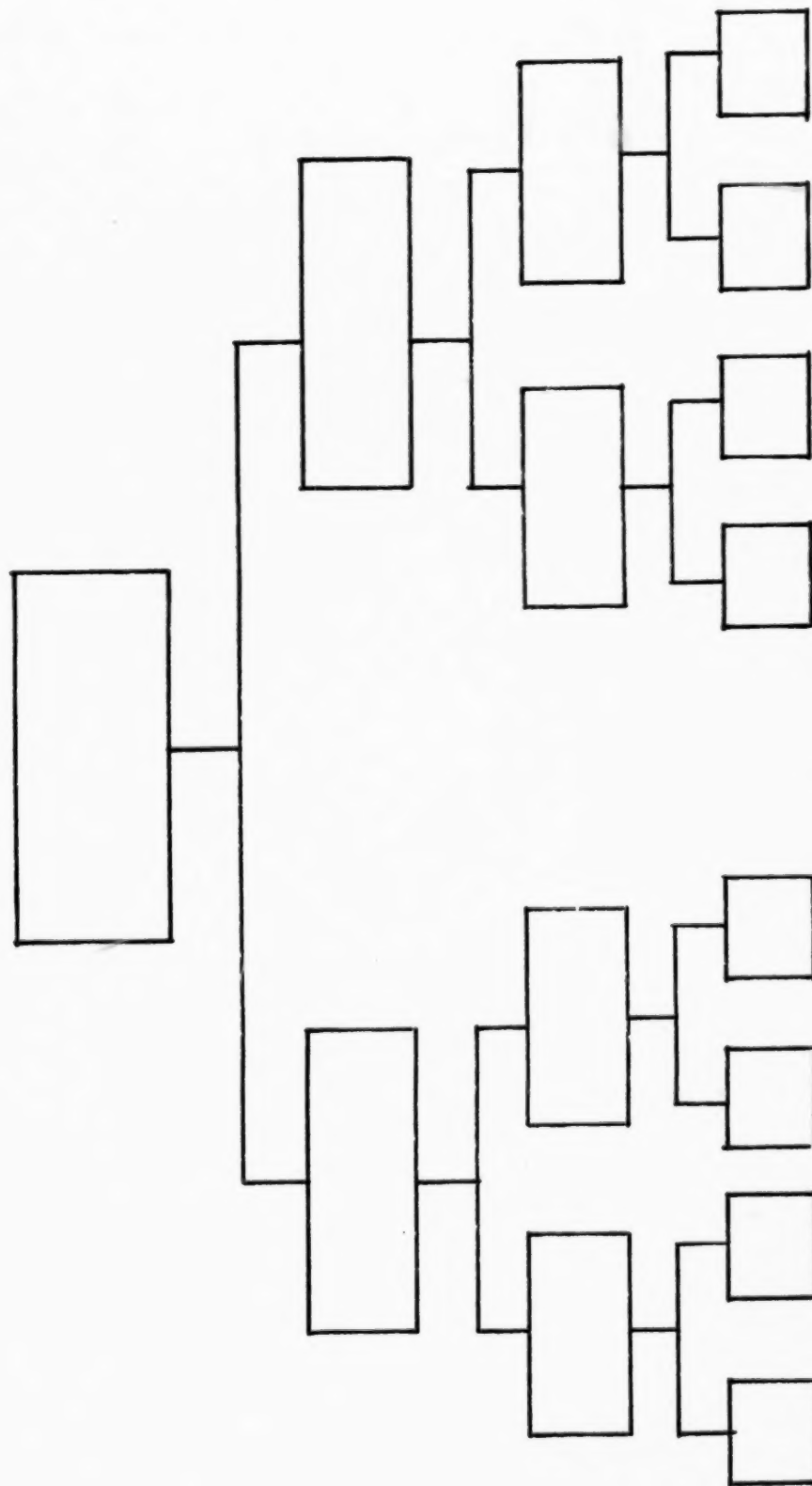


Figure 11.

5. Interacts with learners so that they achieve the objectives
6. Evaluates changes in behavior
7. Decides on the appropriate next instructional step

These seven components were the first level of analysis in the model. They were conceived as not two but seven components. (See Figure 12.) The analysts might have conceived of two components such as (1) planning to elicit behavior changes and (2) executing the plan. The analysis which would have resulted from these two components might be quite different in terms of relationships but might eventually define the same specifics. The seven components were perceived as the largest meaningful components of this taking-apart process and describe the same behavior as that in the top box of Figure 12. The task force who did the analysis, however, reserves the right to revise the analysis on the basis of further information and later perceptions. The analysts have suggested that the seven components might be conceived of as three--planning, executing the plan, and assessing results. Dotted lines in Figure 12 show this three-component alternative.

Second Level of Analysis

The second level of analysis is carried out by taking apart what resulted from the first level of analysis. The same requirements for analysis apply. In the model which is our example, the following components were identified as second level products of analysis: (See Figure 13.)

1. Defines objectives.
 - a. States objectives in operational terms.
 - b. Justifies the choice of a particular objective.
2. Adjusts objectives for individual learner's requirements.
 - a. Determines entry behavior prerequisites for the objective.
 - b. Devises alternative objectives for different learners according to the prerequisites they possess for the task.
3. Selects instructional strategies.

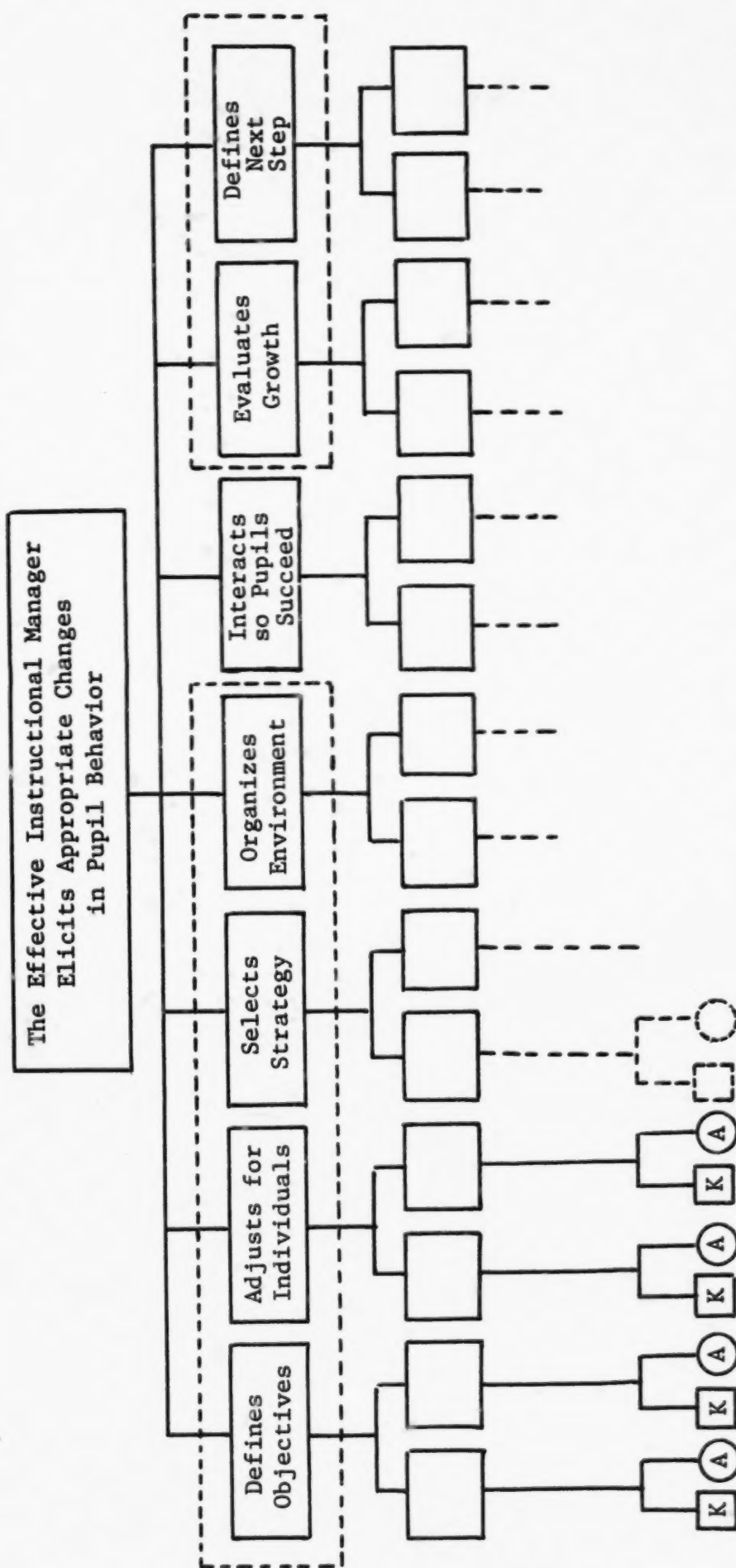


Figure 12. First Level Analysis

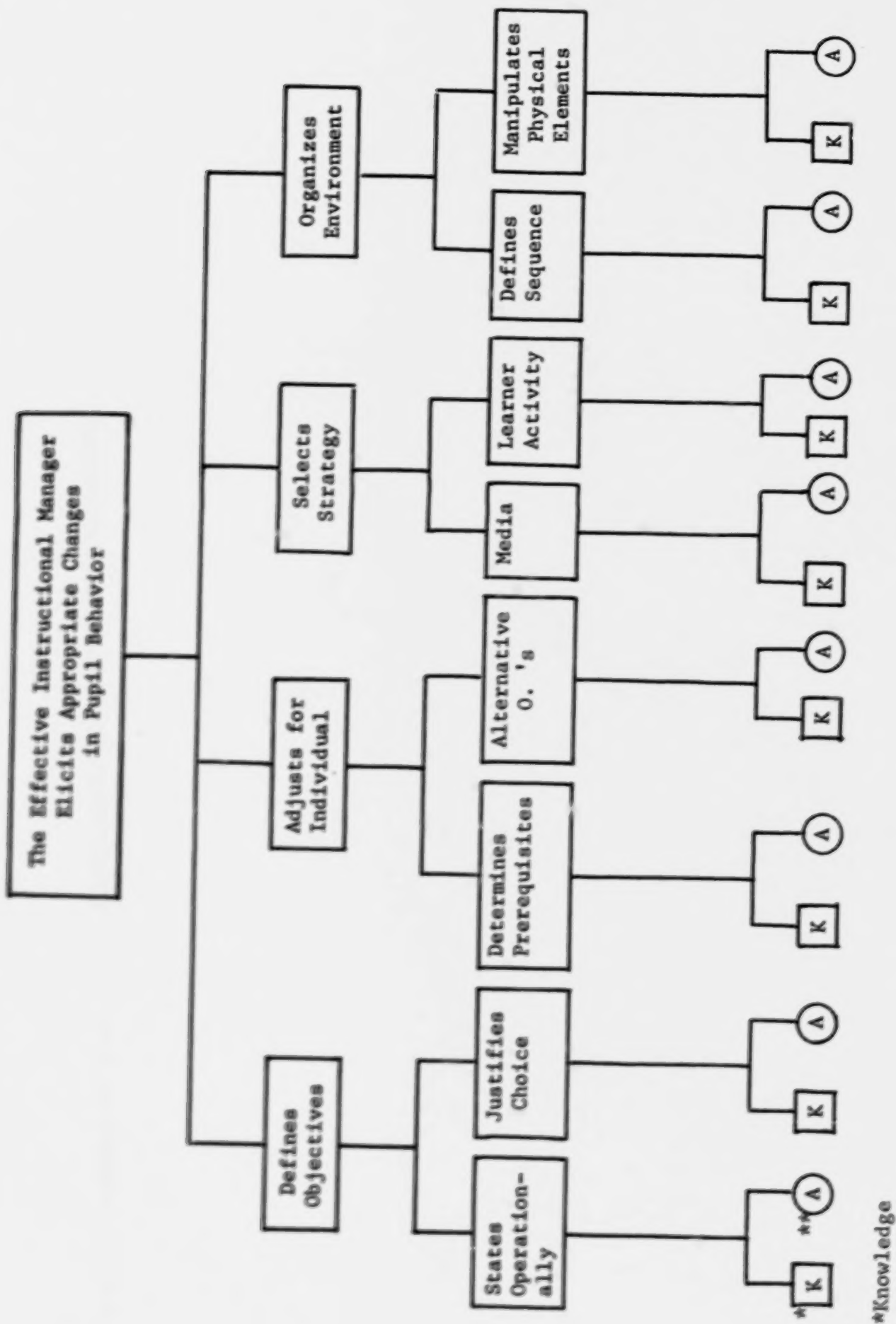
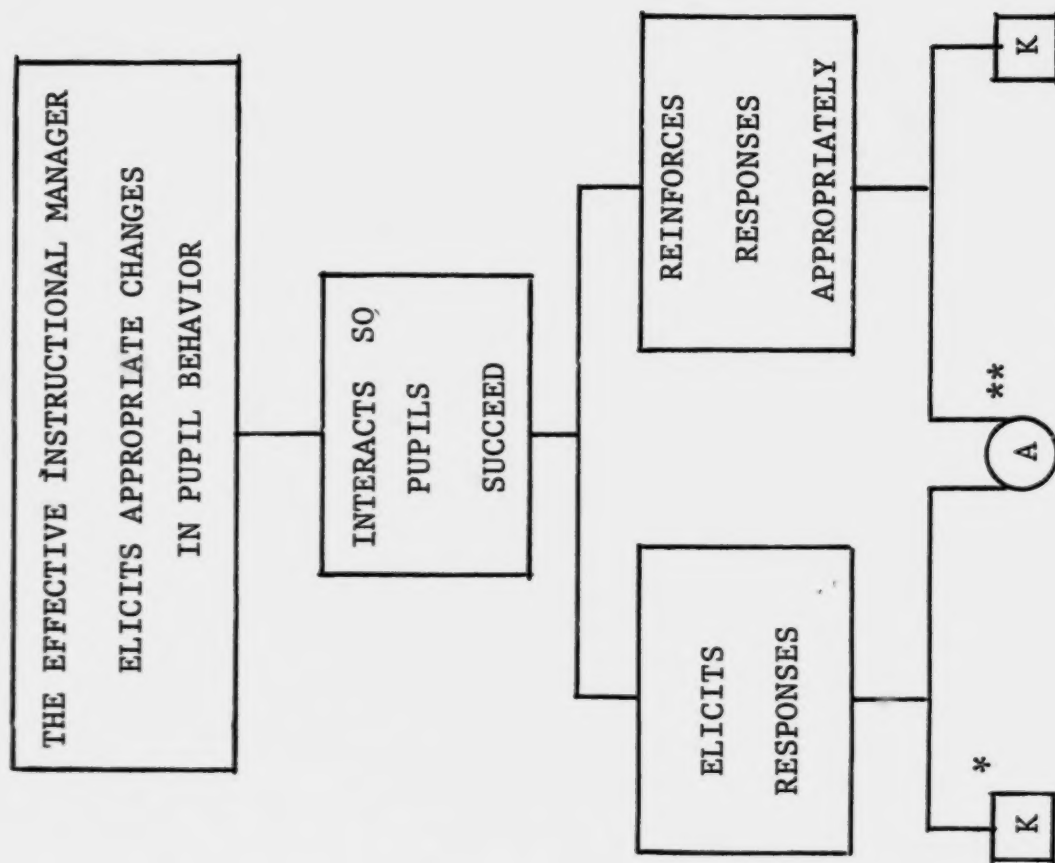


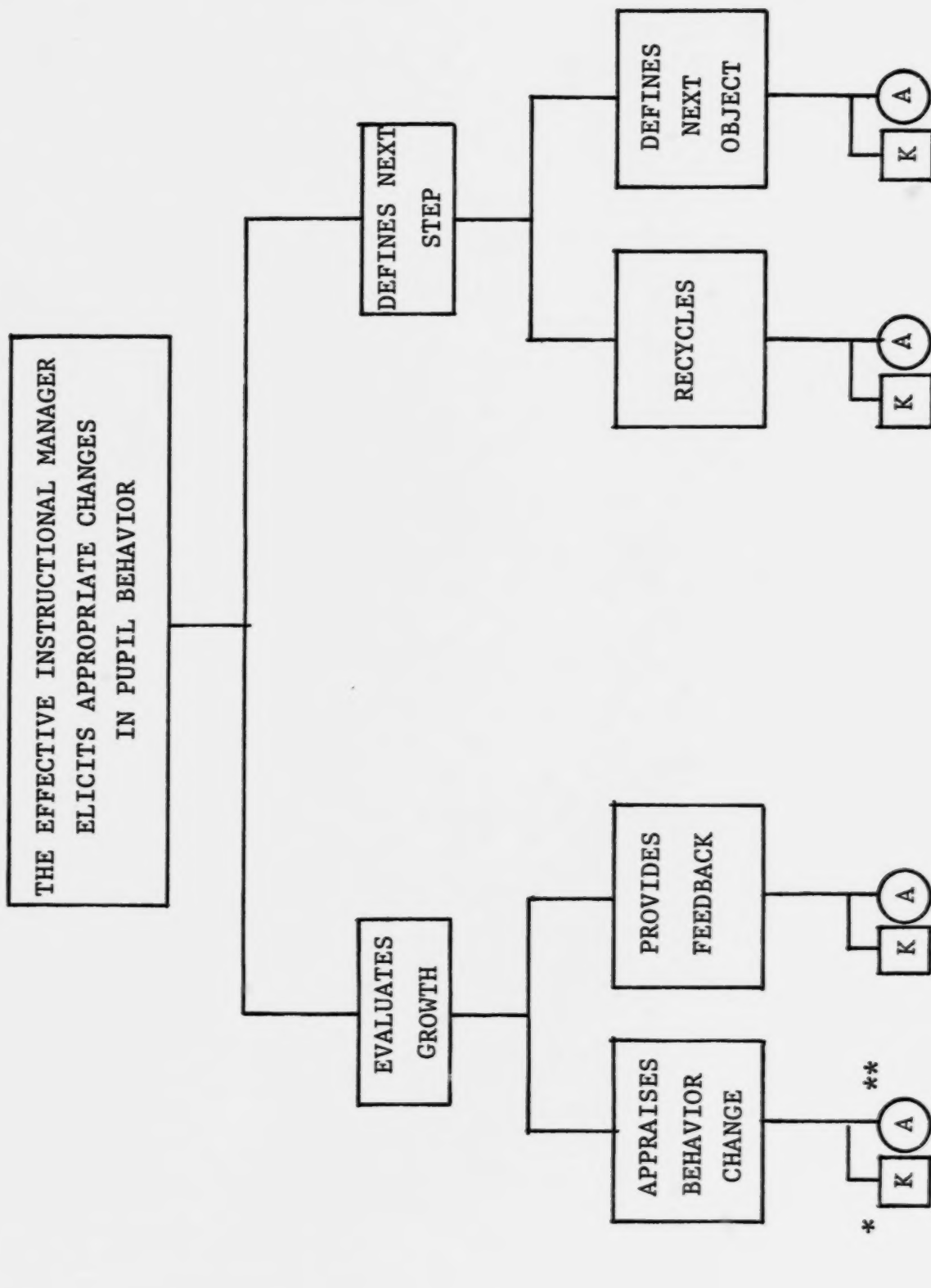
Figure 13. (Continued on next two pages) Second Order Analysis



*Knowledge

**Application of Knowledge

Figure 13. (Continued) Second Order Analysis



*Knowledge

**Application of Knowledge

Figure 13. (Continued) Second Order Analysis

- a. Selects media appropriate to objective.
- b. Selects learning activities appropriate to objective.
- 4. Organizes learning environment.
 - a. Defines a sequence of activities.
 - b. Manipulates the physical elements of the environment to fit the planned activities.
- 5. Interacts with pupils.
 - a. Elicits responses from learners.
 - b. Reinforces responses of learners appropriately.
- 6. Evaluates growth.
 - a. Appraises changes in behavior.
 - b. Provides learners knowledge of the results of their behavior.
- 7. Defines next step.
 - a. Recycles so that learners may improve.
 - b. Defines next objective.

This whole set of second order components must equal the original top box, "elicits appropriate changes in behavior." Again, this set of components represents a set of judgments which can, and should, be revised as the input for making the judgments changes.

Terminating the Analysis Process

The analysis process may be repeated almost indefinitely. In this model we break out components until we decide subjectively that we have identified "Tasks." These Tasks are manageable pieces of the total behavior of the effective instructional manager and therefore signal the termination of the analysis process. They represent what we conceive of as major steps to be taken by the student of teaching becoming an effective instructional manager. They may then become the general descriptions of learning systems. Each Task may be stated also as a criterion for evaluating teaching.

The Nature of Tasks

The result of this systematic analysis was to identify "Tasks." These Tasks are defined as significant blocks of behaviors which, when performed by the student, represent a significant gain or advance in the body of competencies needed by the effective instructional manager. An example of a set of Tasks for the laboratory is presented in Appendix H.¹ The Tasks are restated as behavioral objectives for instructional systems. The same Tasks are also restated as criteria for judging the performance of the instructional manager in the final state of the ComField training program--the Practicum.

The Tasks in the laboratory have both knowledge and performance components. The knowledge component is necessary to enable the instructional manager to choose from available alternatives before selecting or carrying out a particular strategy, i.e., the student must know the characteristics and strengths of many teaching techniques in order to choose a particular strategy which he feels will be appropriate for a particular teaching objective. The study and acquisition of this information would constitute the knowledge component of the Task, "Selecting Strategies." Choosing one or a series of strategies to implement a particular objective would be the performance element of the same Task.

¹The word Tasks is used in a slightly different sense in the exemplars. Tasks, as used in the exemplar learning systems, would be Subtasks to the Tasks described in this text.

Components of the Tasks, in this model, are the learning activities which the student of teaching performs in attaining the objective of the Task. Identification of these learning activities is accomplished by the systematic analysis process we have already described. The analysis process may be continued to the point that analysts identify steps in linear programs within learning systems. At some point, the analyst decides that further taking apart of components is not justified in terms of costs and energy. The further the process is carried, however, the more specific are the descriptions of elements of the ultimate product. These descriptions must then be stated as behavioral objectives for the student of teaching and restated as the criteria for appraising the performance of teachers or instructional managers.

The model then has identified the major elements of a teacher education program. Each of the major elements, components of the ultimate product, must then be further analyzed; but we have identified a system which is a logical arrangement of our concepts about the instructional manager.

The Nature of Instructional Systems

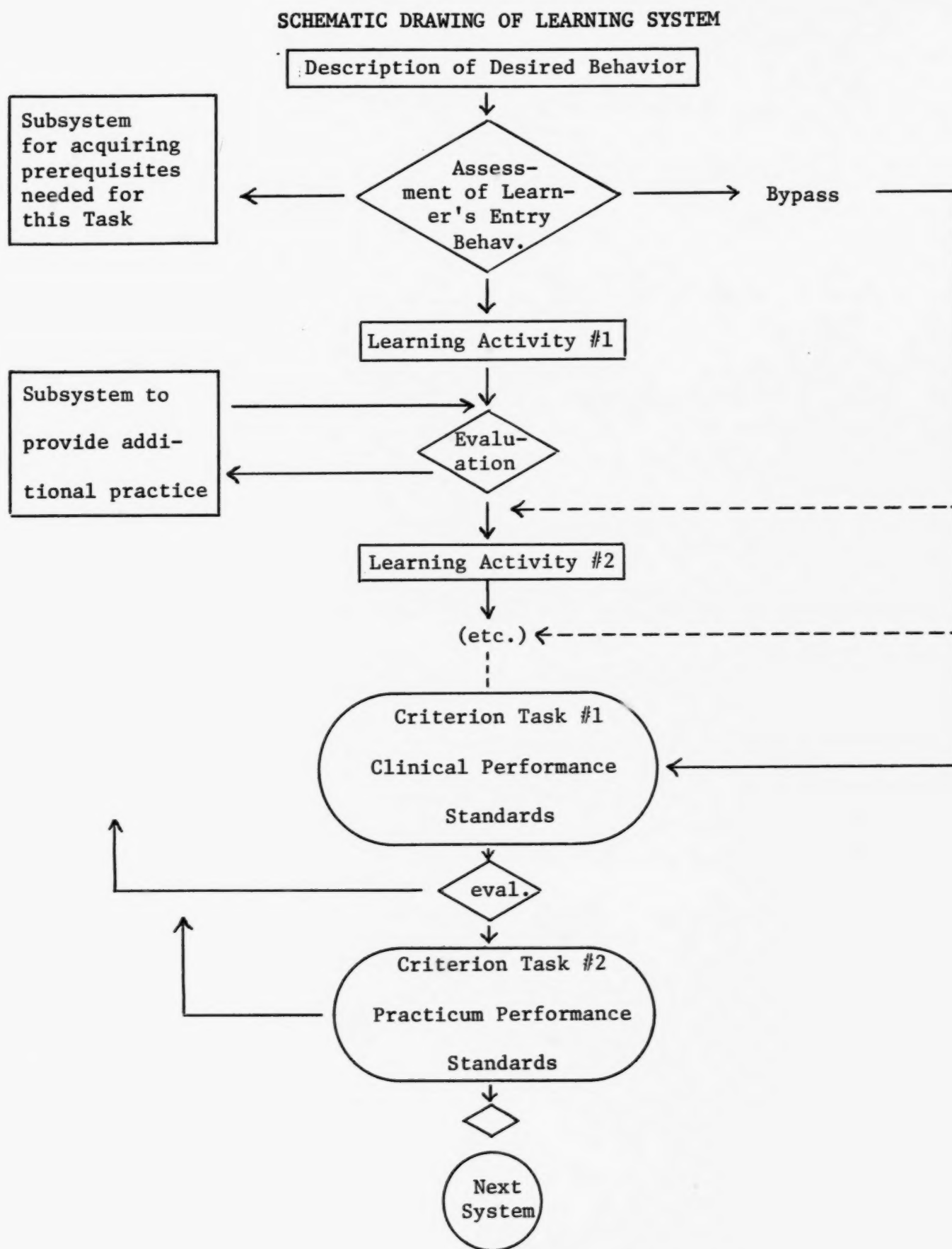
Requirements of Learning Systems

The goal of the whole model is to define a system which will produce instructional managers who elicit appropriate changes in pupil behavior. The strategies for moving students who are becoming instructional managers through a series of tasks must be consistent with this broad goal. The test of the strategy for educating the student of teaching is that the student will demonstrate to criterion level the behaviors which were identified as evidence of the effective instructional manager. The means for enabling students to demonstrate such behaviors in this model is a series of learning systems. (See Figure 14)

The model for a teacher education learning system consists of five elements:

1. A statement and explanation of the desired behavior.
2. A procedure for assessing each learner's entry level in relation to the desired behavior.
3. Alternative sequences of learning activities in which each learner either:
 - a. Successively completes behaviors which constitute essential steps leading to the objective,
 - b. Demonstrates an advanced level of entry behavior, and consequently bypasses selected essential steps leading to the objective, or
 - c. Demonstrates a deficiency and meets prerequisites to essential steps leading to the objectives.
4. A criterion task in which the learner demonstrates the behavioral objective in terms of a generalized performance standard.
5. A second criterion task in which the learner demonstrates the behavioral objective in terms of situation specific performance standard.

Figure 14.



In Appendix I and in Appendix J are two sets of examples of instructional systems designed for the Laboratory. Appendix I is an example of the systems designed to enable instructional managers, or students, to write objectives in behavioral terms for different domains of learning behavior. Appendix J is a set of instructional systems which are intended to enable the student to perform, at criterion level, essential interaction behaviors which are the heart of the classroom or interpersonal process. These prototype systems in the Appendices do not, of course, describe what it is really like for a student to go through this kind of a laboratory in contrast to attending lectures and taking tests.

The Nature of the Laboratory

In the following sections there is a verbal description of one hypothetical student moving through the simplest of the interaction systems. This example is designed to help clarify the nature of student activities which are envisioned for the laboratory. The concluding sections deal with the laboratory environment, the staff, and administration.

Hypothetical Study of a Student in the Laboratory

The objective in this first interaction system is: "To Elicit Responses Indicating that Pupils have Acquired Either Some New Information or Some New Performance Skill." This is a basic interaction competency because all of the more complex interaction performances subsume this particular behavior. This behavior is basic communication, and is part of the process of interaction whether the ultimate behavior is cognitive, or affective, or psychomotor. The total behavior asked of the student is in three steps:

First, he must select some information or some specific skill which he assumes will be new behavior on the part of his pupil.

Then he must plan activities which will lead to the actual demonstration of the desired new behavior by the pupil. That is, the plan must result in responses by the pupil which are evidence that he has correctly acquired new information or a new skill.

The final step, of course, is that the student must demonstrate the plan with real pupils, obtain real responses, and assess the results of his demonstration.

As the student completes each of these three steps, he is presented with a series of alternatives, to one of which he may direct himself, or which may be suggested to him by another staff member or even another student. At critical points throughout the system, he receives some kind of feedback as to his progress and some suggestion as to the appropriate next step.

The System Begins with an Explanation of the Task

In this example the student begins by reading an explanation of the task. The explanation consists of two items: (1) A very brief verbal description together with a chart describing the

communication process. This is essentially a guide to the teaching strategy which our student must design for this task. (2) He views a model in the form of a videotape recording or a film of a teacher successfully demonstrating this behavior; that is, communicating to pupils and receiving from them a response indicating that they may have acquired new information and can demonstrate their use of this information. Accompanying the explanation of the task is the assignment that he is to select an appropriate objective, develop a plan likely to result in the type of response he desires from pupils, and then carry out the plan with real pupils.

The Student Chooses Next Best Step

The system has accomplished the first step, that is, to explain the task to the pupil. A number of alternatives immediately are available to the student. He may decide that the explanation is inadequate, in which case he may consult a member of the staff or he may decide that, yes, he understands the explanation but he is not sure the reasons for doing this, or, at least, he does not, himself, attach high values to his own performance of this task. Perhaps he may wonder if he has the appropriate values for interacting with pupils. At any rate, this kind of decision, which involves his own attitudes, should result in his moving to a subsystem which provides outside counselling assistance. The subsystem should help the student define and clarify his own values in regard to this particular task. This subsystem is an alternative route for the student at each checkpoint throughout the system. A third possibility is that our hypothetical student understands the explanation of the task and feels that he knows the problem so well that he immediately can perform the behavior of writing the complete plan. He then requests that an opportunity be arranged for him to demonstrate his plan with pupils. In some implementations of this system a college staff might decide that another alternative would be to bypass the evaluation of the plan and allow the student to try out whatever he had devised with pupils without further feedback from staff or other peers.

The Student Selects a Behavior for Pupils to Acquire

Most likely our student will move through all the planned steps with frequent opportunities for feedback, rather than go back, or bypass, this sequence of steps. The first step is to select an appropriate piece of information (or a limited performance skill) and to state this information in the form of a behavioral objective. In order to accomplish this step the student must have already acquired the technical competence to write objectives in behavioral terms and, further, to use this competency in writing objectives

for either low-level cognitive behaviors or low-level psychomotor behaviors. This he has accomplished in prior systems.

The task allows either psychomotor or cognitive low-level behavior to be demonstrated, because the teaching strategies seem to be identical, or at least parallel in either case. Regardless of which domain the student chooses for this particular task, a later task will emphasize the fact that there is always an affective behavior component related to either the cognitive or psychomotor behavior. The laboratory, however, offers the opportunity to concentrate on one aspect of instructional management at a time. Therefore this task somewhat artificially limits the objective and limits the strategy to either the low-level cognitive or the low-level psychomotor communication. Later tasks add to this basic competency by requiring that the student obtain from pupils appropriate evidence of affective behaviors accompanying the cognitive behavior.

Our hypothetical student writes a behavioral objective describing a response by a pupil which would indicate the acquisition of new information or a new skill. This statement of a behavioral objective is evaluated by other students in the laboratory. On the basis of this judgment a student has a variety of alternatives again. They may consult the staff to check on judgments of their peers; they may go to the counselling subsystem to clarify their own feelings and values as to this behavior; they may go back and rewrite or write another objective, or they go on to the next step.

Basically this particular step of selecting an appropriate new behavior for this task is a very simple linear type subsystem. There seems to be no real alternative to selecting an appropriate bit of behavior for pupils. The student either does this and is judged to have done it satisfactorily, or the student does not do it satisfactorily and has to do this again. This is comparable to what happens in a linear program.

A Subsystem Enables the Student to Write a Satisfactory Plan

The next step is really a subsystem on planning. This subsystem is based on the assumption that the student has already demonstrated in previous instructional systems in the laboratory that he has acquired specific behaviors which are essential to planning. That is, he knows how to select media and pupil activities, and he can organize the learning environment and can plan his assessment procedures. Therefore, this subsystem on planning consists of rather large steps. Step 1 is to write a plan for an initial strategy for the entire task. This initial strategy has three steps within it. The first of these steps within the initial strategy is to

present the new information, or skill, to the pupil. The second step is to elicit from the pupil a sufficient number of overt responses so that the student can assess the effect of his presentation strategy. The third step is to design ways of reinforcing the appropriate responses pupils will make. Step 2 is to replicate Step 1; that is, to provide an alternative strategy, or an additional strategy, including the presentation of the new information, eliciting responses, and reinforcing those responses appropriately. The plan is completed by a strategy for summarizing to pupils the nature of their responses, or having them summarize and acknowledge the new behavior which they have acquired. This simple task is based upon a communication model which has the requirement that there must be several attempts to elicit the appropriate responses. One attempt is assumed to be doomed almost automatically to failure.

The Student Selects One of Alternatives After Writing Plan

The plan is evaluated by the staff. A variety of alternatives result from this evaluation. Basically the alternatives are the same as those which were available to the student at the completion of the first subsystem for selecting the objective. If the plan seems to require revision of some sort, the staff may elect to have the student rewrite the plan, or go back and select a new objective, or go back and review the prior systems on planning skills, or the staff or the student may elect for the student to branch out to the subsystem on counselling. Assuming that the plan is appropriate, the student then demonstrates his plan with real pupils.

The Student Makes a First Attempt to Demonstrate Criterion Behavior

The demonstration is the criterion behavior which is required in the task. This particular interaction system is designed so that a version of microteaching, or miniteaching, provides the environment for the criterion behavior. A small group of pupils of the appropriate age and grade level are utilized for the demonstration. The student is given five minutes, more or less, to carry out the plan. The interaction is recorded by means of a videotape recording, audiotape, or transcript and at the conclusion of the student's demonstration, staff members and the student sit down and review the performance and effect data and evaluate this criterion performance.

The Alternatives Following the First Attempt at the Criterion Behavior

A rather elaborate set of alternatives is designed in this instructional system following the evaluation of the first try at the criterion behavior. The system provides a number of alternatives because this task is conceived to be a basic interaction behavior,

subsumed in all future interaction behaviors. The ComField planners believe that it is quite important that a high level of success be achieved by the student in this introductory interaction system. Therefore, all of the alternatives presented to the student at the conclusion of the planning subsystem are again presented at this point. In addition, the student may have alternatives leading to a second criterion behavior attempt. These alternatives consist of:

He may view a videotape recording of another teacher successfully demonstrating this performance. This would be the second model of the task which he will have seen because he saw a model in the explanation of the task at the very outset of the system. (In many ways it is highly desirable throughout these interaction systems for students to see more than one model. There are always a variety of styles of teaching which may be quite effective in achieving a given behavioral outcome on the part of pupils.)

Having observed the second model, the student may then go back to his original plan and revise that; present the revision to the staff, and proceed to mirror-teach; or demonstrate the revised plan to other students--his peers. This mirror-teaching, then, would be evaluated by the student and his peers that he may or may not use videotape recordings to assist them in this evaluation.

On the basis of this peer evaluation, the student then has the alternatives provided throughout this system of consulting staff, going back and repeating, or going out to the counselling subsystem, or going on to the final performance.

In any case, the student attempts a second criterion behavior demonstration, in which he meets again with another group of pupils to carry out his revised plan. This attempt is again videotaped and again the staff and the student sit down to evaluate whether or not he has met the criterion level of performance in this criterion task.

An important part of the evaluation of this, and all behaviors in the laboratory, is that the responses which the student elicits from pupils, or plans to elicit from pupils, meet the standards of (a) appropriateness for their content quality, (b) appropriateness for the learning outcome desired, and (c) are consistent and appropriate to the unique characteristics of the learners for whom the task is intended.

The Nature of an Appropriate Environment for the Laboratory

This example has been described in considerable detail in order to communicate to the reader what it is like to move through an instructional system. Hopefully the implications of this mode of instruction are clear. It is obvious to the ComField planners that the environment for this kind of learning makes it possible for the student to move from small informal groups with other students to private conferences with staff members, to more or less formal environments where they work in arranged situations with elementary age pupils, to environments where they can be relaxed and leisurely in their study of models of teaching behavior in the form of transcripts, videotaped recordings, or films. The implications for educational spaces are that the furnishings at least must be movable, and that there must be easy access to the newer media and that a variety of conference settings are essential.

How Staff Members Function in the Laboratory

One of the interesting consequences of the systems approach is that there is necessarily a very close relationship between one or more staff members and each individual student in this laboratory. There probably will not be many situations in which a professor talks at, or demonstrates to, a large group of students. This is because explanations and panels of information need to be available at almost any time to almost any number of students. This requirement suggests that most exposition will be by media rather than by the human teacher. On the other hand, the system requires that frequent evaluation and feedback be given to the student, and this function is not now possible to put into a mediated form. Staff members, then, will be closely associated with the individual student in assessing performances, or helping the student assess his own performance. Staff members then help this student to make appropriate choices in order that the student attain success by demonstrating the behavior described in the specifications for each instructional system.

Instead of the all-purpose professor, these instructional systems require quite specialized competencies which may not exist in the person of one professor. For example, there must be skilled counselling for the subsystems which are designed to enable the student to define and clarify his own values regarding each task and the total set of tasks. Also, there must be persons skilled in the

operation and production of educational media. There must be persons who are skilled in the design, or redesign, of instructional systems for the laboratory. There must be persons who are effective in helping a group of students evaluate the performance of one of their members. It is conceivable that such a cluster of competencies may exist in staff members of Schools of Education at this time. It is more likely that colleges desiring to implement this model will have to assess the competencies of their staffs and devise training programs for staff members so that they may successfully fulfill the requirements implied in these instructional systems.

Considerations for Administering Instructional Systems

Although the activities in the laboratory will be different in many important respects from that in present Schools of Education, the administrative problems of implementing the laboratory may not be as great as one might first surmise. The individual relationships required suggest that the staff-student ratios, which are now acceptable for supervising student teachers, may be applied to this laboratory. Although college buildings probably are not designed with this particular laboratory in mind, physical resources for the laboratory can be arranged through appropriate furnishings and the provision of educational media equipment instead of elaborate remodelling of existing rooms. Probably the most important difference between typical college facilities and this anticipated laboratory is in the nature of the furnishings. The furniture which is designed for language labs, for example, would be more appropriate than the furniture designed for lecture halls. Movable seats and informal furniture would be more appropriate than fixed seats. A second important consideration would be the location of the necessary learning resources appropriate for each of the instructional systems. It is not absolutely essential that the film strips, audio-tapes, videotaping equipment, television studio, library, etc., all be adjacent to the study spaces in the laboratory, because the college student is perfectly capable, of course, of moving from place to place. It will facilitate the operation of the system, however, if some planning is done to make logical arrangements of these resources for such systems as the one described on interaction.

Defining Appropriate Pupil Responses

So far, the model described the behavior of all instructional managers. The model fits those who work with young children as well as those who work with adults, those who address themselves to behaviors in mathematics or those who are concerned with literature; those who reinforce democratic attitudes or those who elicit autocratic attitudes. Except that we have examined the technical competencies of bringing about change, we have not spoken to the word, appropriate, in our definition of the effective instructional manager--one who brings about appropriate changes.

In Identifying Tasks in the model, we noted that each of these parts of the general description of the desired behavior had a knowledge component and an application component. For each task, there is technical knowledge which enables the student to apply the new behavior. The desired behavior for each task is really the demonstration by the student that he can apply the knowledge under both laboratory and practical conditions of teaching. For example, it is necessary to have knowledge about stating objectives behaviorally, but it is necessary to apply this knowledge to particular conditions. One cannot apply in general. In this model, the task force conceived of three conditions under which application of the behavior of the instructional manager must inevitably be demonstrated. These three conditions for application of teaching behavior are:

1. The instructional manager must apply the behavior (stating objectives, interacting with pupils, etc.) to a class of learning outcomes

2. The instructional manager must apply the behavior to a particular content field

3. The instructional manager must apply the behavior to a particular combination or set of learner characteristics

For example, one task in the model is to state objectives behaviorally. We further describe the task by requiring that the objectives as stated are appropriate for (a) a particular class of learner outcomes (e.g. "comprehension" in the "cognitive domain" of the Taxonomy by Bloom, et. al.), (b) for a particular content (e.g. Lewis Carroll's description of the Mad Hatter), and (c) for a particular set of learner characteristics (e.g. ten- and eleven-year old children living in Bellevue, Washington--an upper-middle class suburb).

Just as there are components of the behavior, stating objectives behaviorally, there are components of appropriateness for each of the three learning conditions prescribed in the model. The first set of components of the behavior is mainly a function of technical competence and the second set of components is mainly a function of value judgment. Our model then may be represented as it appears in Figure 15.

Another way of describing the model is that the entire plan for enabling students to demonstrate the behavior of an effective instructional manager is to break out manageable pieces of this total behavior, restate these manageable pieces as behavioral objectives in which the student applied the piece of behavior, and in applying the behavior meets three types of performance standards.

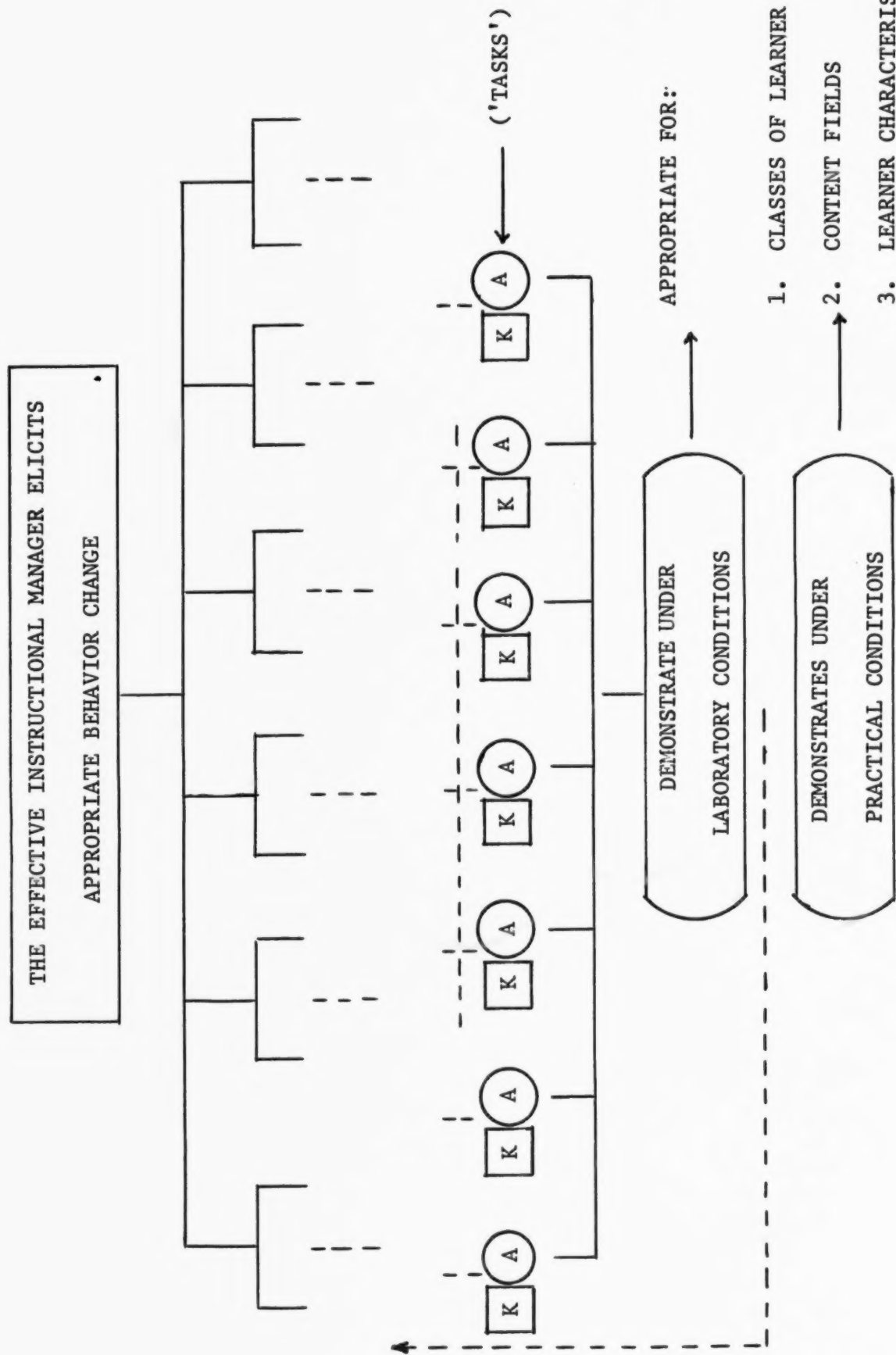


Figure 15. Model for Demonstrating Instructional Competencies

Methods of Evaluation

This model of the effective instructional manager requires two different approaches to evaluation. First, the problem is to determine whether or not the student who is becoming an effective instructional manager performs to criterion level. Later, the problem is to assess what level of performance, in terms of a range of levels, has been attained by the practicing instructional manager. For the student this initial appraisal may be of performances made under laboratory conditions, while later the appraisal will be made of performances under practical conditions. Under laboratory conditions, the student will demonstrate a piece of the total behavior of the instructional manager, and the instructional manager in practice demonstrates the whole behavior. It follows that the instruments and means for evaluating laboratory performances will be different from those for evaluating practice by instructional managers. The differences will be that the laboratory assessment may be more specific and more detailed than the practical assessment. Again, this is a matter of how far we wish to carry the analysis process.

Evaluation of Performance Under Laboratory Conditions

The criteria for evaluating a laboratory demonstration by a student instructional manager are the components of that performance which is being demonstrated. In the model, this performance is what we called a Task. If the total behavior of the effective instructional manager is broken into manageable "parts" when we identify Tasks, then these parts are in turn broken into "pieces" to identify learning activities, and these pieces become "bits" when the particular steps leading the student through the system are defined. The criteria for appraising laboratory demonstrations of "parts" then would be based upon "pieces" and "bits." The criteria for appraising the practical instructional manager would be "parts" and "pieces."

Different behaviors demonstrated under laboratory conditions require different means of assessment. For example, the student demonstrating his ability to write a behavioral objective writes an objective. This is appraised by reading the objective and comparing it to the four criteria which define the behavioral quality of such objectives, and further judged as being appropriate for a class of learner outcomes, a content area, and a set of learner characteristics. In another set of tasks, the student is required to elicit responses from pupils and reinforce them appropriately. (See Appendix I, Tasks 18-22). In one particular application of this task, the student is to assign work to students and establish a favorable set on their part for doing the work. (See Appendix I, Task 18). This application

requires the student to elicit two classes of learner outcomes-- comprehension of the assignment (cognitive behavior), and willingness to undertake the assignment (effective behavior). In the pilot study where this learning system was field tested, the staff identified seven components of the interaction behavior to be carried out by the student. These seven components became essential elements in the learning system for the student instructional manager, seven elements in the student's instructional strategy, and seven criteria for appraising the performance of the students with pupils in a laboratory situation. In actually assessing each of the seven criteria, coaches judged the student also in reference to the three classes of learning conditions already described. These two examples illustrate that the nature of the evaluation technique depends upon the nature of the criteria.

In the learning system context, the appraisal of the student is often a "go, or no go" kind of judgment. The student reached criterion level of performance or didn't. The instrument for evaluation is usually different for each of the tasks which is to be judged in the teacher education laboratory.

The Nature of the Practicum

The Practicum is not a set period of time. Rather, as the instructional manager demonstrates increased levels of competency, he moves through different stages of the Practicum. These stages are marked by increasing amounts of responsibility on the part of the instructional manager as director of learning for real pupils. He demonstrates his readiness to move from one stage to another by his increased ability to appraise his own performance, and by increased ability to determine the appropriate strategies for his own continuing education. He is judged increasingly competent on the basis, also, of his increased skill in judging the appropriateness of pupil responses. This last basis for judging the growth of the instructional manager depends upon the instructional manager increasing his capacity to make these judgments. In other words there needs to be some evidence that the instructional manager has added to his repertoire of knowledge in each of the foundation areas described in an earlier section. A logical method for accomplishing this, of course, would be to continue his formal study in a college in appropriate fields related to the foundation areas.

Assessment Process is the Basic Method for Continuing Education

The basic technique for continuing the education of an instructional manager is a system of appraisal, or self-appraisal, together with a joint inquiry process involving the supervising teachers and the instructional manager. Supervisor and instructional manager assess performances and plan ways of adapting to that assessment. The appraisal instrument will be based upon the behavioral objectives which defined instructional systems for the laboratory. In other words, the objectives which were the titles of instructional systems in the laboratory will be restated so that they become criteria for judging the performance of the instructional manager in the Practicum. An example of an appraisal instrument is included as Appendix K. An example of a training model based on a joint inquiry process is included as Appendix G.

The Practicum Allows for Individual Growth Patterns

The Practicum will vary for different individuals. Some instructional managers may continue in the Practicum indefinitely in the sense that they may never demonstrate a sufficient amount of growth to

be judged worthy of a continuing certificate. The Practicum encompasses what is traditionally thought of as student teaching, orientation to teaching, and beginning teaching. There are no such periods designated in the Practicum, however. The assumption is that the instructional manager in the Practicum goes through a continuous growth program. Certain phases may be identified and these may be marked by new kinds of responsibilities to be given to the instructional manager, but the process of continuous growth is assumed will cover a substantial period of time typically two or three years. (See Appendix L for an exemplar of phases within the Practicum.) The ComField planners believe that the greatest amount of change in the behavior in the instructional manager is most likely to occur during the Practicum. If the Practicum is like beginning teaching, it is reasonable to expect that the level of competency with which the instructional manager enters the Practicum will deteriorate to some degree before some improvement is noticeable. The purpose of the Practicum is achieved when independent observers, that is, supervisors and perhaps the instructional manager himself, agree that there have been significant improvements in each, or nearly all, of the essential competencies of teaching from the time the instructional manager entered the Practicum.

Bases for Evaluating Progress in the Practicum

The instructional manager completes the Practicum, then, when there is significant growth observed in the competencies of instructional management. Another basis for judgment is that the instructional manager has demonstrated competence in the roles of professional educator and member of the community. To complete the Practicum, the instructional manager further must have demonstrated increased ability to make judgments about the appropriateness of learners' responses. This requirement will demand evidence that the instructional manager has increased his repertoire of knowledge in each of the foundation areas described in this model. Finally the instructional manager must have demonstrated some commitment to the goals of the ComField model. For example, criteria are that a set, or series, of objectives will include behaviors in the affective as well as cognitive domains; that the behaviors in each of these domains will be both complex and simple. These are decisions which the instructional manager can make voluntarily. His commitment to this goal will be demonstrated by his actions. If it can be shown that the instructional manager voluntarily chooses the difficult route of affective and complex behaviors when planning objectives, then it may be assumed that the instructional manager has demonstrated commitment to at least this particular goal. Commitment on the part of the instructional manager is most conclusively

demonstrated by that individual's choosing to assess his own performances and to design his own self-improvement program.

The End Product of the Practicum

The product of the Practicum, then, is the instructional manager who is effective and efficient in eliciting changes in pupil behavior, who has a rational basis for deciding on the appropriateness of these changes in behavior, who is committed to choosing significant goals for different kinds of individuals, who is capable of adapting and developing a unique personal style of teaching, and who has demonstrated that he is able to assess his own performances realistically, and to design his own continuous program for self-improvement.

The completion of the Practicum is by its very nature a decision by several people, including the instructional manager himself, that there has been a significant qualitative improvement in the performance and decision-making power of that instructional manager. The conclusion of the Practicum is marked by a continuing certificate. The theory of the continuing certificate is that this particular teacher must not be appraised at any point in the future in terms of that person's right to continue as an instructional manager and a member of the profession.

The Nature of the Foundations

It might be most effective to have instructional managers acquire the appropriate foundations of knowledge and skill at the time when it is most appropriate to test out this knowledge in a teaching situation with children; however, the student must acquire some knowledges and skills to enable him to judge the appropriateness of his instructional behavior. For each instructional system in the foundation block, criterion behaviors of the student consist of both cognitive and affective dimensions. The instructional systems will require the student to demonstrate that he can recall and use knowledge in a particular foundation field and also these systems will require the student to value acquiring and using this knowledge. For example, the systems described in Appendices B and C are designed to enable the student to demonstrate new information in the field of mathematics. The ComField planners assume, however, that merely indicating recall or knowledge about mathematics will not be sufficient unless there is also evidence that the student demonstrates the desire to use this knowledge about mathematics when appropriate in a given situation.

In implementing the ComField model, instructional designers are forced to make choices as to which knowledge or which skills are to be considered essential for the student becoming an instructional manager. In this model, these decisions must always be considered tentative and relevant only at a certain point of time for any given input of information about one of the foundation fields. Designers of these instructional systems will define behavioral objectives which describe the behavior of this instructional manager when he is communicating subject matter concepts to particular classes of learners and with a specific type of learning outcome in mind. This general guideline is intended to distinguish the instructional systems in the ComField model in this phase of the program from the typical courses called "foundations." That is, the behavioral objectives in these ComField systems must always be tested as being clearly relevant to the concepts which elementary learners will be expected to demonstrate.

Repertoires of Knowledge on the Conceptual Framework for Teaching Disciplines

The behavioral objectives for students in this block of content systems are not the same as the objectives in comparable subject matter courses in the liberal arts departments. For instance,

the mathematics concepts to be acquired by the ComField student in this model are not purely mathematical in nature. Rather, they are concepts which the instructional manager needs in order to communicate mathematics to early-age children. What does the instructional manager have to be able to do in order to elicit appropriate responses in mathematics on the part of elementary pupils? What are the unique requirements to be met by the instructional manager who must communicate mathematics concepts to pupils? What does he have to be able to recall and understand about mathematics and what does he have to do in order to communicate mathematics to pupils?

By way of explanation the ComField model includes in Appendices B and C two examples of mathematics foundations. In the second exemplar, eight commonly-accepted mathematics concepts constitute the framework of the knowledge system. This particular model gives considerable attention to affective behaviors associated with acquiring mathematics knowledge. Finally this model describes a series of learning packages which might be used systematically to enable students to acquire these eight basic concepts, together with means for communicating the concepts to pupils. The model describing a mathematics foundation in Appendix B is included to underline the fact that the ComField model is not a prescription for a college staff, but rather a broad blueprint permitting a variety of applications. The second model stresses the use of most of the same mathematics concepts, but in a unique form. Mathematics is equated with language, and the student who will become the instructional manager acquires a vocabulary in mathematics and a way of communicating this vocabulary in written or oral form. This model for communicating mathematics symbols is comparable to using words to form sentences and paragraphs. Both math systems have the same end in mind; that is, the instructional manager will be able to make appropriate judgments as to the correctness and significance of mathematics behaviors on the part of his pupils.

The instructional systems and behaviorial objectives should be designed for each of the following major curriculum fields:

- 1) Reading
- 2) The other language arts
- 3) Natural science including health science
- 4) Social studies
- 5) Physical education and recreation
- 6) Fine arts and crafts
- 7) Music

For instructional programs in the future it is likely that the all-purpose, self-contained classroom will not continue to be the basic model of the elementary instructional program. Future instructional managers will be required to have considerably more depth, but in fewer academic areas. However, for the present it seems imperative that instructional managers have some level of competence which will enable them to judge the adequacy of responses of their pupils in each of the above content fields.

Repertoires of Knowledge on Learner Outcomes

The ComField model specifies a set of instructional systems consisting of a body of knowledge describing a universe of learner outcomes. The instructional manager will be able to recall and use information about learning outcomes in the cognitive domains as defined by Bloom and Associates, the affective domain as described by Krathwohl and Associates, the psychomotor domain as tentatively described by Simpson, and the vital domain as defined by Schalock. The student will acquire both knowledge and a set of values which will result in ability to sample all these domains at various levels of complexity when designing objectives for pupils.

The ComField model describes a unique synthesis of knowledge regarding various types of learner outcomes. This system also determines a unique approach to knowledge regarding learners. The ComField planners believe that this synthesis combining the various domains described above is more satisfactory as a description of a universe for judging learning outcomes than other descriptions the staff was able to discover. The description of this synthesis appears in Appendix A. This paper is a key contribution to the ComField model and represents a somewhat different approach from the ones described in the literature on the subject. At the present time the ComField planners have not defined a set of behavioral objectives for the knowledge and valuing behaviors required of instructional managers using this foundation of knowledge. Some of the specific taxonomies are incorporated in later instructional systems intended for the laboratory stage of the ComField instructional program.

Repertoires of Knowledge on Characteristics of Learners

The ComField model requires a set of instructional systems for acquiring information about a variety of pupil characteristics. The

systems would enable students to develop repertoires of knowledge about the following characteristics:

- 1) Age of learners
- 2) Sex of learners
- 3) Intelligence
- 4) Self-orientation
- 5) Value-orientation
- 6) Previous knowledge as it affects learning in a classroom

Each of these categories describing pupil characteristics would consist of further subsystems. (See Appendix H for a description of the components of each of these systems and subsystems.)

The Nature of the Entry Behaviors

The Entry Behaviors are those abilities to recall facts, use this information, or demonstrate basic skills, each of which is absolutely essential for success in the first instructional systems which form the professional ComField program.

Entry Behaviors for Foundations Systems

We may ask, for example, "What are the abilities which are assumed for success in those instructional systems which are designed to supply the instructional manager with the concepts and skills needed to communicate mathematics to elementary school children?" In Appendices B and C are examples of systems designed to provide this kind of repertoire of knowledge for teaching mathematics. In each of the systems individual prerequisites are implied. In Appendix B the instructional designers have assumed that in addition to basic study skills such as reading, the candidate will possess basic mathematic vocabulary to enable him to recognize and recall concepts such as "set," and "number systems." The model does not dictate how these Entry Behaviors are to be acquired. The assumption is that individual students will have different backgrounds and may acquire such Entry Behaviors in a variety of ways. They may learn about basic mathematics vocabulary as a part of a college course in mathematics. They may recall such information from high school study of mathematics. They may acquire the required behavior by studying self-instructional materials. The only reason for requiring that the student demonstrate that he can recall and use the concept of set is that this ability is assumed to be necessary for success in a particular instructional system.

In the same way, each of the Foundations Systems implies particular Entry Behaviors. These prerequisite behaviors are the only traits of the student which are assessed before admission to the program. In all other respects the student selects himself as a future instructional manager.

Entry Behaviors Shape General Education

This definition of Entry Behavior has strong inferences for the general education portion of the program of the student who is a candidate for the ComField program. To some extent the Entry Behaviors for each of the Foundation Systems will determine general education.

In other words, the student may look to liberal arts courses for a large part of these Entry Behaviors. In the ComField model the candidate for the ComField program can meet all requirements for professional competence, while remaining in mainstream of higher education in America. This means that the professional program will constitute one-third to two-fifths of the total baccalaureate program. The remainder of the baccalaureate program will allow for a broad liberal education in which the candidate meets all of the requirements deemed necessary of the liberally educated person by a particular college, together with the requirements for an academic major or an interdisciplinary major.

Academic Majors are Part of the Baccalaureate¹

While the liberal arts or general education component of the basic program serves a fundamental function in ComField, the academic major functions quite outside of the basic goals of ComField. The goal of ComField again is to produce instructional managers. Instructional management is only the initial role of the professional educator. More responsible or complex roles might include the roles of instructional designer or instructional analyzer. These roles require that the candidate develop a basis for specialization at the same time the candidate is acquiring competence in instructional management. The depth in a discipline which is acquired in earning an academic major serves as a basis for specialization needed by the future instructional designer or instructional analyst. Later study in the major field may enable instructional managers to take on the additional responsibilities of instructional design. The academic major is not only a requirement for the liberally educated college graduate but is also a planned component in the program of those elementary educators who advance to the high career roles.

We recognize also that what are now considered to be necessary components of instructional management are quite likely to change in the school of the future. Presently the instructional manager must be competent to make decisions about the appropriateness of objectives in all content fields in the elementary curriculum. It is probable that in the future the instructional manager may be a specialist in a content field, or in particular professional techniques. For the

¹Editors' note. Dr. Hite has presented a point of view on the necessity of an academic major for an elementary teacher education program. For a presentation of the case for an interdisciplinary major, see Appendix S.

Summary

The instructional program of ComField is designed to produce effective instructional managers. The effective instructional manager elicits appropriate changes in the behavior of learners. The instructional manager is capable of determining appropriateness in desired changes by drawing from repertoires of knowledge which enable him to determine how a particular set of pupil responses fits with current authoritative descriptions of the curriculum concepts in content areas. He is further able to judge the appropriateness of responses in that the responses are clear examples of specific levels of a particular domain of behavior, and, further, that a set of objectives sample various domains and various levels of a universe of learning behaviors. Finally, the instructional manager is able to assess the appropriateness of pupil responses in terms of the characteristics of the learners themselves, including the backgrounds which influence those learners. The product of the ComField model is an instructional manager who has demonstrated his capability of assessing his own performance and designing his own plan for adapting and improving his competence as an instructional manager.

The instructional program which produces this kind of product consists of a chain of activities systematically arranged so that the individual student will, step by step, achieve success by demonstrating appropriate behaviors, each behavior based upon the preceding one and leading to the final step of the adaptive self-improving valuing changes of pupil behavior.

We conceive of this total model of defining objectives, criteria and learning systems for teacher education as a system. A system must always have a self-correction capability. In this system, the analyst continually reexamine the judgments he makes as he defines objectives and criteria.

Specifications for the Development of Noninstructional Competencies

William T. Ward

In addition to his role of facilitator of the development and well being of children (Role I), the Instructional Manager will also have other roles which are noninstructional (Role II). One is that of facilitator of institutional requirements. In this role he will carry out routine administrative duties required by the school as an institution. Another includes such matters as conferencing with parents, interfacing with other professionals in the school, professional writing, carrying out research activities, modeling ethical and professional behavior, i.e., maintaining proper client-professional relationships, using appropriate procedures for colleague criticism, etc. Still another role that the Instructional Manager of the future will play is that of facilitator of his own development and well being. More than ever before the teaching profession will demand continued personal and professional growth of its personnel; and to be maximally responsive to the future, a teacher education program must systematically attend to the development of the capability to do so.

The noninstructional roles of the Instructional Manager (IM) will include but not be limited to the following:

- A. Participates in administrative decision making regarding policy, curriculum and school management.
- B. Works with community to secure needs of total school program: physical facilities, financial support, and respect of patrons.
- C. Assists in the professional growth of teachers.
- D. Takes personal responsibility for his own professional growth.
- E. Participates in other administrative activities.
- F. Helps improve pre- and inservice teacher training programs.
- G. Communicates the needs of the profession to the public, administration and profession.

While the tasks which have been identified within Role II are not unique to ComField, the fact that ComField attends to these tasks in a systematic way is noteworthy. The ComField system provides instruction on all tasks in Role II for all trainees at four levels of development: (1) demonstrating repertoires of knowledge, (2) demonstrating knowledge of the elements of the task, (3) demonstrating ability to perform elements of the task, and (4) demonstrating ability to perform the total task. For a sample task analysis and some examples of behavioral objectives of a teacher training program written for selected tasks from the analysis see Appendix D.

As the need is identified or as the instructional manager's role is defined to include additional tasks in Role II, then systems will be prepared to accomplish such instruction. For an exemplar of an instructional system to bring about Role II competencies see Appendix M. An exemplar showing how a specific school system might implement an instructional system for Role II is in Appendix N.

The specifications for the development of the noninstructional competencies parallel those required for developing the instructional competencies, i.e., the same requirements in task analysis, instructional systems design, assessment and provisions for laboratory and practicum experiences must be met. One notable difference between the training for the instructional competencies and the training for noninstructional competencies is that the majority of the educational program for Role II competencies will take place while the IM is practicing in the field.

An outline of the specifications is presented here. The reader is referred to pages 40-53 for more detail.

- I. The program will provide for an analysis of the range of teacher behaviors in order to explicate the knowledge base required for Role II. (See Appendix D.)
- II. The program will provide for the tasks to be stated in the form of behavioral objectives. (See Appendix D.)
- III. The program shall provide the instructional systems to produce the behaviors identified in each task. (See Appendices M and N.)
- IV. The program shall provide for experiences in which the IM may continue his training in Role II competencies and acquire additional competencies which are necessary for the career teacher.

Specifications for the Development of Facilitating Competencies

William T. Ward

The facilitating competencies are seen as those which enable the instructional manager to perform his instructional (Role I) and noninstructional (Role II) roles in a more effective manner. The two sets of facilitating competencies examined in this section are the general adaptive competencies and the interpersonal competencies.

The performance of Role I tasks is dependent to a large degree upon the general adaptive capabilities of an Instructional Manager (IM). Development of adaptive capabilities is essential if an IM is to carry out the functions of (a) diagnosing or assessing the situation, (b) prescribing predictable alternatives, and (c) following through. The rationale for developing the general adaptive capabilities is seen largely through that for the interpersonal or interpersonal-adaptive competencies.

The rationale for attending to the development of interpersonal competence in ComField is derived from research and development both from inside and outside education. The work of the National Training Laboratory Institute for Applied Behavioral Science (NTL/IABS) represents the most extensive and most sophisticated work in this area. The thesis here is that the interpersonal competencies needed by social workers, personnel managers, leaders of business and industry, bankers and voluntary organization leaders are the same as those required for pupils, teachers, and teachers of teachers. Dorothy Mial calls attention to the importance of specialized preparation to develop interpersonal skills when she says:¹

The most important outcome of human relations training programs may be the development of the individual's adaptive and learning capacity. This would mean, according to Warren Bennis and others, that the objective is not to teach everyone the same values

¹Mial, Dorothy, "Human Relations in the School Environment." National Training Laboratory Institute for Applied Behavioral Science, National Education Association, Washington, D.C., 1968.

and behaviors, but to improve adaptive capability for all participants based on (1) improved accuracy of perception of self and of one's relationship with others, (2) more complex and accurate understanding of interpersonal phenomena, (3) greater behavioral flexibility and range through experimentation with new ways of relating, and (4) greater interest in continued learning about interpersonal and group relationships.

Fox and Lippitt (See Appendix O) ask several questions pertaining to the importance given to human relations in school and to the teacher training programs that prepare teachers to operate the schools. What would it be like if a school were to see itself as a laboratory for living and learning in which the best that is known about human interaction were utilized? How would it be organized? What would be its priorities? Could human relationships themselves be a focus for inquiry? In what ways would it be different from the schools we now work in? Continuing, Fox and Lippitt state:

In spite of the fact that teaching itself is a process of human interaction, and much of the learning takes place in an interpersonal and intergroup setting, most of the attention given to the human relations aspects of the school has been incidental, informal, and unfocused. It has been the intellectual, cognitive objectives of the school that have been given major attention and support.

The ten underlying assumptions stated by Fox and Lippitt have been accepted as a logical rationale for giving major attention to the development of interpersonal-adaptive competencies in the ComField program. Fox and Lippitt assume that:

1. Much of the growing alienation from learning of children and youth stems from pressures to engage in cognitive learning activities for which there is little affective commitment or sense of relevance.
2. The motivation to learn derives from the challenge of meaningful problem solving or inquiry activities which combine elements of intellectual search, affective involvement and commitment, skill practice and action closure.
3. The major supports for learning come from the norms of a peer group in which one has status and acceptance, and positive identification with respected adults who are available as resources and guides for learning activities.

4. With the rate of expansion and change of knowledge, the challenging priority is to help young learners acquire the skills of learning, a sense of self-potency to initiate problem-solving efforts, the interpersonal skills to collaborate in giving and receiving help in learning, and the ability to evaluate their efforts objectively in relation to articulated learning goals.
5. From the available evidence that as human relations improve, the efficiency of intellectual activities improves, as manifested in:
 - a. more availability and use of personal resources for learning effort,
 - b. more freedom to use the resources of others,
 - c. more individualization of learning patterns,
 - d. more motivation to learn,
 - e. more trust of student initiative by teacher, parents, and others.
6. The socio-emotional environment of the school, in which the child spends such a large segment of his early life, has a major impact on his mental health and basic style of human relations.
7. The tasks of "academic learning" and "human relations learning" are interdependent processes and that achieving the ability to diagnose interpersonal process in the work situation is an important aspect of achieving optimal learning conditions.
8. Knowledge of developmental growth sequences is very important if the school is to provide appropriate opportunities for human relations learning relative to responsibility-taking, decision-making maturity, self-education initiative, impulse-control balance, etc.
9. A great challenge of the new resources of educational technology is to shape them, along with the use of time and space, in such ways as to support and facilitate creative and productive human relations.

10. Many organizations and groups in the community, in addition to the school, have educational objectives and programs, and that collaboration with these other educational and socialization influences is crucial if the child's total learning potential and opportunities are to be mobilized.

Since most children and adults are operating at a very low level in terms of their potential, the attention to adaptive, interpersonal, intergroup, organizational and community development competencies are seen as essential components in a competency based, field centered teacher education program.

Teacher education is seen as increasingly out of touch with reality because of missing links between preservice and inservice training, between school systems and colleges of education, between college and university faculties in behavioral science and other content areas, between faculty and students, between college and community, and among colleges of education as innovators. These linkages are seen as crucial to diagnose performance needs of teachers and to develop appropriate curricula. There is need to utilize human relations laboratory training, theory, methods, and knowledge in creating models for collaborative planned improvement. Concern has been expressed over the discrepancies between current teacher educational practice and "what might be" if available knowledge about human behavior, learning, change, human relations, and organizational and community development were utilized.¹

¹ Taken from a proposal submitted by a consortium, under the direction of NTL/IANI, to train trainers of teachers through exploratory development of Educational Training Communities composed of student and adult collaborators from colleges of education, universities, cooperating schools and communities, and utilizing human relations laboratory training theory, knowledge and methods to bring about relevant curriculum change. NTL/IANI is presently engaged in a program to overcome these discrepancies. The Northwest Regional Educational Laboratory and Gonzaga University are two members of this consortium.

The interpersonal matrix created by Fred Massarik¹ represents the interplay of social forces affecting the individual, generally equivalent to the social field of the individual's life space. This matrix is defined fully by the network of perceptual, behavior, and affect relationships linking the individual with other people about him. This matrix provides an appropriate schema for categorizing as well as determining growth in interpersonal development.

The interpersonal matrix considers relationships between the trainee with persons in his immediate family, personal friends, persons in membership groups, persons in occupational formal organizations, and persons in reference positions, in each case viewed as individuals or as groups (or systems) of relationships. While the matrix is primarily designed for evaluation and research, it provides an excellent means to categorize "key" dimensions of interpersonal competencies.

Charles Jung and Bob Luke (See Appendix P) have conceptualized a categorical system that encompasses the major dimensions of interpersonal relations development. Major headings under the categories are given extensively for one of the four categories and illustratively for the others. Mial has identified a number of teacher competencies in the interpersonal domains which facilitate learning. This paper is presented as an example of a task analysis required to develop the interpersonal competencies. (See Appendix F.) Further illustrations of learning experiences to produce some of these competencies are presented. (See Appendices Q and R.)

The specifications for the development of the interpersonal-adaptive competencies parallel those required for developing the instructional competencies, i.e., the same requirements in task analysis, instructional systems design, assessment, and provision for laboratory and practicum experiences must be met. An outline of the specifications is presented here. The reader is referred to pages 40-53 for more detail.

- I. The program will provide for an analysis of the range of teacher behaviors in order to explicate the knowledge base required for interpersonal-adaptive development.
- II. The program will provide for the tasks to be stated in the form of behavioral objectives.

¹Fred Massarik, A Sensitivity Training Impact Model: Exploration in Human Relation Training and Research, NTL No. 3, 1965.

III. The program shall provide the instructional systems to produce the behaviors identified in each task.

IV. The program shall provide for experiences in which the IM may continue his training in the interpersonal-adaptive competencies and acquire additional competencies which are necessary for the teacher.

Specifications for the Personalization of Professional Competencies

Jesse Garrison

Learning is personalized insofar as it is perceived by a student as having meaning and relevance to himself. The personalization of learning is different than its individualization. Learning is individualized when it is appropriate to the readiness or the information processing style of the learner; learning is personalized when the learner is actively involved in making choices based on confrontations of the relevance to himself of what is to be learned. Personalizing learning recognizes the learner as the ultimate, appropriate decision maker. It allows for an infinite variety of human potential. It utilizes technology as an aid to rational decision making, but never allows pre-programmed materials to dictate to the individual which decisions are personally relevant.

In addition to the wisdom inherent in the desire to personalize learning, two reasons can be advanced for its receiving strong emphasis in ComField. The first reason derives from the already established mental health movement in our schools. It is the conclusion of workers in this field that it is through a consideration of the relevance of learning to the self that we can best provide for adaptive capabilities. Appendix T summarizes this point of view and the research which underlies it. The second reason derives from advances in the efficient acquisition of knowledge through the use of programmed materials, particularly those communicated with the aid of computer technology. As this trend gains momentum it will require increasing numbers of the teachers being trained to emphasize the human factors in education that cannot be handled by machines.

To many the application of systems methodology to instruction is antithetical to the personalization process. The dangers most commonly seen in such an approach include:

- 1) teaching reality as though it existed independently of the individual, and thereby forcing compliance of individual perceptions to external definitions typically derived from authority;
- 2) assuming that meaning exists in instructional materials rather than in the minds of learners;

- 3) treating the student as a recipient of knowledge, as being passive or reactive rather than active or searching;
- 4) decreasing the opportunity for the false starts, the searching, the ambiguity and stress which typify most important "real life" decisions; and
- 5) failing to recognize that "high level cognition" describes the process by which knowledge is initially developed rather than an intrinsic property of knowledge itself.

While it is true that such dangers exist, they need not. There is nothing inherent in a systems design approach that requires instruction to assume such a posture. There are also a number of advantages that such an approach offers for the personalization of learning:

- 1) as the goals of instruction are made more explicit, the student becomes better able to monitor his progress toward them;
- 2) the careful analysis of teaching tasks leads to a statement of desired outcomes that are more likely to have intrinsic relevance to a prospective IM because of their relationship to actual teaching behavior;
- 3) the systematic design of instruction should lead to fewer inefficient, ineffective, and nonessential teaching-learning situations; and
- 4) feedback is typically furnished to the learner as an integral part of the learning process, thereby increasing his capacity to control his learning experiences.

Three provisions are made in the model for the personalization process:

- 1) fostering an understanding of one's self
- 2) continuous opportunity to explore the value or meaning or relevance of particular competencies for one's self, and
- 3) freedom and encouragement to develop a style of teaching that is in concert with one's self.

Operationally, these provisions are to be used in two somewhat different ways. First, they form the basis for a set of instructional systems designed to initiate the process of self-understanding,

commitment and search for teaching style. Second, and more importantly, they constitute an integral part of every instructional system that is designed to bring about a given professional competency. As a student moves through such a system he always has the option of pursuing the meaning of the competency for himself personally, his commitment to it, and how he can integrate it into an evolving teaching style. Also, each time a competency is assessed it is done so from the point of view of these three factors, as well as its performance qualities. Whenever there is reason to believe that the personalization of a competency is not going well, or whenever the performance of a competency is inadequate, the student is routed through a "corrective decision" loop wherein he may, upon further diagnosis, be routed to any of a variety of corrective experiences. These can vary from conferencing designed to facilitate the personalization process, to cycling through an enabling subsystem, to recycling through the learning experience just completed. The critical point is that a mechanism to facilitate the personalization process is always available and that its use is mandatory. The whole process is rooted in the democratic ethics of personal worth and the right to self-determination.

Specifications for the Foundation of the Personalizing Process

Self-Understanding

As used in ComField, self-understanding has three components: (1) self-definition, (2) self-awareness, and (3) self-direction. They correspond respectively to questions such as, "Who am I?" or "What am I?" "What do I do?" and "How do I do it?" "What do I want?" or "Where am I going?"

SELF-DEFINITION. This concept refers to the issue of, "Who am I?" "What is my basic personal makeup?" To obtain self-definition it is hypothesized that at least three factors are necessary: (1) knowledge of one's basic personal characteristics or tendencies, (2) an opportunity to check by one's self and without threat the congruence between this knowledge and one's behavior, and (3) an opportunity to have others check without threat the congruence between self-definition and behavior.

Specifications

1. Each student shall be given information from objective instruments as to the elements that make up his personality.

2. Each student shall have a series of nonevaluative interviews within which to discuss the meaning and implications for behavior of this information. (See Appendix U)
3. Each student will have a series of nonevaluative interviews within which to explore the meaning of behavior that has been observed in the laboratory and practicum for self-definition. (See Appendix U)

SELF-AWARENESS. This concept refers to the issue of "What do I do?" and "How do I do it?" as this pertains to the student's own learning style. It is hypothesized that at least three factors are necessary to the development of an awareness of learning style: (1) mastery of the concept of learning style, (2) recognition of alternative styles, and (3) practice in the application of alternative styles.

Specifications

1. Each student shall be provided a description of alternative learning styles.
2. Each student shall explicate his own learning style.
3. Each student shall have a series of nonevaluative interviews within which to explore the meaning of behavior observed in the laboratory and practicum for the development of a learning style.
4. Each student shall demonstrate that he can identify alternative learning styles in pupils.

SELF-DIRECTION. This concept refers to the issue of "What do I want?" or "Where am I going?" as this pertains to choice of setting within which to teach. It is hypothesized that two factors are necessary to bring this about: (1) knowledge of alternative settings within which to teach, and (2) opportunity to practice within alternative settings.

Specifications

1. Each student will spend time in classrooms which differ in terms of age of children, their ability and socio-economic characteristics.
2. Each student will specify his preferences as to educational setting by age, ability and socio-economic characteristics.

3. Each student will explicate his rationale for his preferences.
4. Each student will be provided laboratory and practicum experiences which correspond to preferred settings.

Commitment

As treated within ComField, the concept of commitment refers to the issue of "What do I believe?" or "What will I accept?" as this pertains to the development of instructional competencies.

To clarify commitment, it is hypothesized that at least three factors are necessary: (1) knowledge of one's basic attitude, value or belief structure; (2) an opportunity for one to check by one's self without threat for congruence of this knowledge and one's behavior; and (3) an opportunity to have others check without threat the congruence between commitment and behavior.

Specifications

1. Each student shall be given information that derives from instruments designed to identify basic attitudes, values and beliefs.
2. Each student shall have a series of nonevaluative interviews within which to discuss the meaning and implication for behavior of this information.
3. Each student will have a series of nonevaluative interviews within which to explore the meaning of behavior that has been observed in the laboratory and practicum for commitment.

Teaching Style

As used in ComField, the concept of teaching style refers to the matter of integrating and synthesizing the various professional competencies developed through ComField into a unique and personally relevant approach to teaching. It is hypothesized that two factors are necessary to bring this about: (1) a knowledge of alternative styles, and (2) an opportunity to practice alternative styles.

Specifications

1. Each student shall be exposed to alternative teaching styles through models.
2. Each student shall explicate his own teaching style.
3. Each student is to provide a rationale in support of his preferred teaching style.
4. Each student will have a series of nonevaluative interviews within which to explore the meaning of behavior observed in the laboratory and practicum for the learner's definition of teaching style.

Specifications for the Personalization Process

There are no specific, independent learning experiences within the ComField instructional program designed to bring the personalization of professional competencies about. Personalization experiences are always a part of an instructional system designed to produce a given competency and will take whatever form that is required to permit the exploration of personal relevance or meaning within that system. (See Figure 16, p. 105) Almost always it will involve contact with another person, however, either a peer or a member of the staff; and it will almost always focus upon the affective dimension of that which is being learned. Since there are no specific provisions for the process and since it has been described in some detail as it links to the development of professional competencies only the basic features of the process will be described. These may be considered as specifications.

1. Instructional activities designed to increase students' awareness of their personal qualities and the implications of these for teaching style are to be included as an integral part of the program.
2. Assessment of all cognitive outcomes is accompanied by an assessment of the commitment held toward them.
3. Assessment of student performance is accompanied by an assessment of the congruence between behavior and the basic personality characteristics of the student.

4. Performance below criterion level leads to assessment of the basis for the failure and consequent remediation. Dismissal is more nearly based on an apparent lack of potential to perform the task rather than a punitive or arbitrary measure.

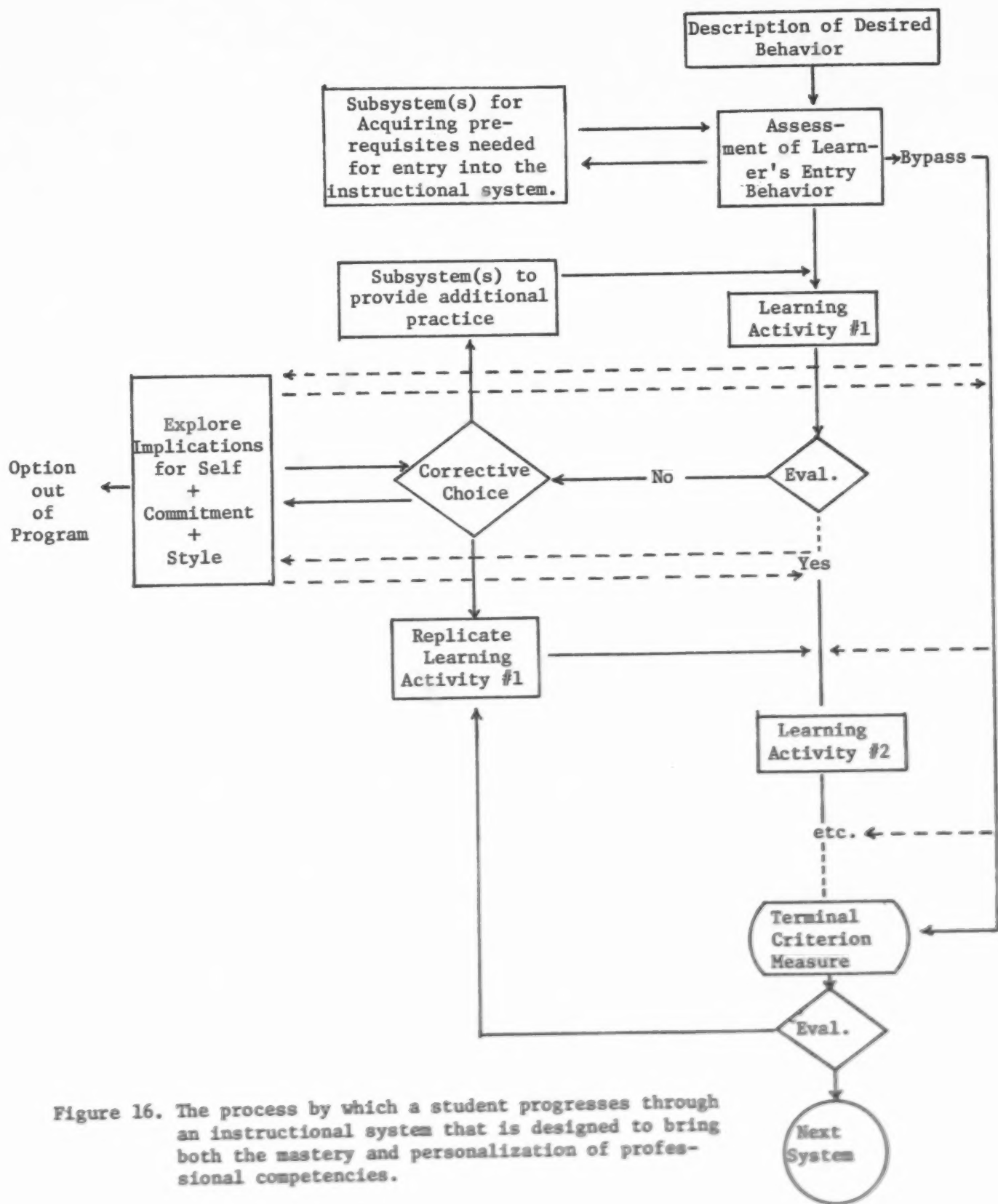


Figure 16. The process by which a student progresses through an instructional system that is designed to bring both the mastery and personalization of professional competencies.

A COMPETENCY BASED, FIELD CENTERED,
SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

PART 2.

SPECIFICATIONS FOR A SYSTEM TO
MANAGE A COMFIELD BASED INSTRUCTIONAL PROGRAM

Specifications for a System to
Manage a ComField Based Instructional Program

Dale G. Hamreus

While the heart of the ComField Model is the instructional program, it requires a complex organizational structure to permit it to function. Broadly speaking, for a ComField based instructional program to satisfy the goal of preparing instructional managers it must have support systems that provide the following functions: instruction, policy, adaptation, program execution, supply, costing, research and development, personnel management, information transmission, and evaluation. The management system is responsible to see that these functions shall not operate independently of one another; they must serve one another with information and/or services for the express purpose of enhancing the instructional program's preparation of instructional managers.

Specifications for the Management System

Specifications are provided for each of the functions within the management system.

I. The instruction function shall:

- A. organize the human and nonhuman resources necessary to carry out the instructional program, as this has been specified in Part I.
- B. actively engage in all ComField Policy formulation and translation.
- C. be represented in all ComField adaptive-corrective functions, with an emphasis on those that pertain to instruction.
- D. determine types and amounts of services required from the various support functions and coordinate these requirements through the program execution function.

II. The policy function shall:

- A. clarify what the expressed educational goals of society are for elementary pupils by gathering appropriate information from qualified agencies in society, and preparing a defined set of statements that organizes these needs in a manner permitting translation for ComField use. (This specification is necessary whether it is applied to the initiating and start-up developments of ComField or its perpetuation).

- B. analyze the defined set of statements expressing pupil goals (clarified in A) and translate them into written policy statements appropriate to guide ComField operations.
- C. insure appropriate program management decisions with regard to program objectives.

III. The adaptation function shall:

- A. translate written policy statements into operational guidelines for the instruction and support components. These guidelines must be compatible with other instructional and support specifications.
- B. judge the operational effectiveness of ComField. Derived data shall be evaluated in terms of the degree of congruency between ComField status and expectations.
- C. recommend policy decisions to the mechanism that serves the policy function. Policy decisions are to be based on (1) evidence of ComField operations, (2) data from other ComField functional elements, (3) and/or data from outside ComField. These recommendations are for the purpose of improving existing policies and/or establishing new policies.
- D. judge efficiency of a specific functional element, several functional elements in combination, or the total system on the basis of feedback from the various functional elements. The output from these efficiency appraisals consists of advisory critiques to the functional element(s) in question.
- E. design new program operations on the basis of ComField policy and/or analysis of systems operations. Outputs will be in the form of new program specifications.
- F. design modified program operations on the basis of ComField policy statements and/or analysis of systems of operations. Outputs will be in the form of modified program operations.
- G. issue directives to specific functional elements regarding needed adaptations on the basis of appraisals of operations and outcomes. Directives are in the form of written specifications given to functional element leaders.
- H. provide feedback from the total system to insure effective information flow between and among the various functional elements of ComField (both college and school), and coordinate with the element responsible for the personnel function.

- I. provide feedback from other institutions via coordinated liaison linkages to insure effective information flow between institutions professionally affiliated with ComField.

IV. The program execution function shall:

- A. establish and maintain integrated levels of relationships between and among the various ComField functions to permit necessary adaptive-corrective and support procedures to be carried out.
- B. translate policies into operational guidelines. Support and instructional personnel shall advise to the translators.
- C. evaluate all ComField operations. Support and instructional personnel shall advise as to the evaluations that are needed, data types to collect and the form in which they should be displayed.
- D. establish the means whereby appropriate inter and intra-institutional linkages are carried out and a feedback network maintained to assure that vital operational data is exchanged and routed to the functional elements in need of it.
- E. design and implement new and/or modified program operations. These will be based on new policy translations from the adaptation function.

V. The supply function shall:

- A. supply materials, equipment and maintenance services as needed by all functions within ComField. Supply needs are to be based on current and projected resource expenditures, market availability and comparable costs. Equitable dispersements of supplies are to be established through mutual agreements of the functional elements involved under the control of the adaptation function and managed by the program execution function.
- B. maintain adequate physical facilities to meet operational needs of ComField.

VI. The costing function shall:

- A. conduct regular and systematic accounting of baseline costs for all resources expended by any functional element of ComField. These costs shall be categorized into two classes:

- B. make analyses of any cost data upon request of any ComField component and provide cost displays in forms that meet these requests.
- C. provide cost statements reflective of the relationship between product costs, effectiveness and impact.

VII. The research and development function shall:

- A. design and develop new instructional systems based upon instructional objectives established by the instructional function. This includes tracking perspective instructional systems and research developments, preparing specific statements of terminal behaviors, designing specific prototype elements for use in the instructional function, developing prototypes and conducting field tests, and modifying the new instructional systems until they meet standards established by the instructional function.
- B. modified instructional systems on the basis of evaluative data.
- C. evaluate effectiveness of specific instructional systems, assessing the congruency between instructional system objectives and trainee performance. This includes the preparation and/or validation of evaluation tools, the evaluation act, and reporting results to appropriate personnel.
- D. advise and/or assist in the research (individual/group) conducted within ComField.
- E. conduct limited basic research on the principles of instruction.

VIII. The personnel function shall:

- A. supply staff qualified to meet ComField demands through assessment, recruitment, screening, selection and training. Selection is dictated by the following: ComField personnel needs, recruitment market, selection criteria, and competencies expected in the operational settings.
- B. supply students to the Instructional Program through assessment, recruitment, screening and admission procedures. This function is contingent upon needs of the instruction program, the market for students, and an appropriate criteria for student selection, i.e., a student exhibiting minimum specified entry-level behaviors.

- C. assure that personal needs of all personnel within ComField are met. Personnel include students, instructors, and staff.

IX. The information function shall:

- A. operate an information system to support the communication requirements within a ComField based program.
- B. initiate data collection procedures for all ComField components.
- C. maintain a centralized information storage system with decentralized distribution capability.
- D. design data reduction and analysis techniques which support the unique requirements of each ComField participant.
- E. develop ways of synthesizing masses of data in order to display concise and relevant information upon request of the user.
- F. continually monitor changing information requirements and develop methods to accommodate corrective variations in terms of data collection and retrieval.

X. The evaluation function shall:

- A. conduct assessment activities (upon request) to provide empirical evidence of operational outcomes. This will include the following types of appraisals: 1) effectiveness - a comparison of student performance and specified goals; 2) appropriateness - the suitability of performance of students; and, 3) impact - the effect of ComField on the larger community.
- B. provide assessment data (upon request) for the operational outcomes of all components in ComField, e.g., management, supply system, instructional program subsystems, etc.
- C. upon request, combine data from all functions for use in continuous system evaluation.
- D. provide assessment data to any member of the ComField staff (instructional and/or management) requesting it.

The Nature of the Management System

Since the instructional program is the central focus in ComField, it establishes the frame of reference for the management system to operate. Thus one characteristic of the management system is its dependent relationship to the instructional program. The management system simply has no other purpose than to enhance the goals of the instructional program. However, the management system dependency is not passive in nature, i.e., awaiting express directives before it can act; rather it is aggressive in that it must actively seek out the information it needs to serve the instructional program.

The second characteristic of the management system is its sensitivity to the instructional program for direction. Only as it is able to detect and identify instructional program operations and outcomes in their most subtle detail can the management system determine clearly what needs are to be provided for. This calls for a rigorous information network so as to assure that all management components can be appropriately informed of events or conditions that influence their operations or products.

A third characteristic of the management system is its adaptive-corrective capabilities. The management system must be able to evaluate any and all actions that occur in ComField and decide, depending upon the degree of success of that action upon subsequent alternative actions. Figure 17 illustrates this adaptive-corrective characteristic.

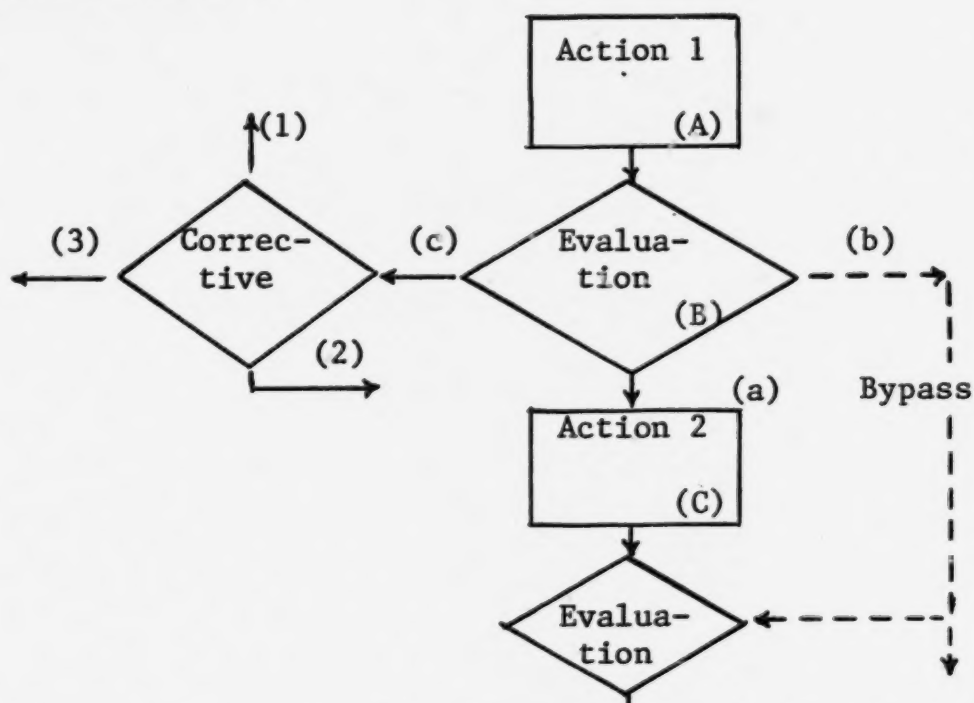


Figure 17. Schematic representation of the adaptive-corrective nature of the management system in ComField.

The capability for adaptation-correction as illustrated in Figure 16, indicates that following any specific action (A) in ComField, evaluation (B) must be made from which a choice of three alternative patterns of responses (a) (b) or (c) can be elected. One choice (a) provides a normal forward progression to the next planned action and implies that the initial action is resulting in desired outcomes for which the next planned action is appropriate.

A second choice (b) provides bypass beyond the next planned action to some subsequent action and implies that the initial action is producing desired outcomes for which the next planned action is inappropriate but for which some subsequent planned action might be appropriate. It also suggests that additional evaluation is necessary.

The third choice (c) implies that the initial action is inadequate to produce the desired outcomes and directs that corrective efforts be taken. Three corrective alternatives are available: (1) modification of previous action(s), (2) modification of subsequent planned actions, or (3) abandonment of that action chain because it no longer serves a desired purpose.

One final comment about the nature of the management system. Management is defined in ComField as the function of organizing humans in the expenditure of various resources, based on decisions resulting from processing certain vital information, for the purpose of accomplishing specified learning outcomes in the ComField instructional program. Obviously, the term management has been chosen rather than some other term, for example, administration of support. This choice is an effort to avoid the stereotyped concept of other terms as they traditionally apply in education. Management is used here in its broadest meaning: to provide the means whereby ComField can achieve its purpose.

It is not the place of this report to attempt to define the operational configuration of the management system; that is left to the developer. Rather, the goal has been to attempt to define the nature of the system and to specify the critical aspects of it. That it falls short of fully accomplishing this goal is obvious. The only hope is that it will provide a significant step in the right direction.

The Decision-Making Process

One of the vital needs of any successful management system is to make appropriate and effective decisions. Such decisions in ComField are necessary at all functional levels; i.e., decisions regarding

the management of instruction, policy formulation, program change, the execution of program operation, etc. In all cases the decision function is the same, namely, gathering evaluative data about the effects of particular actions in ComField, considering these data in terms of the potential resources available, and deciding what corrective or adaptive actions should next be taken.

The process by which decisions are made often has much to say about the appropriateness and effectiveness of those decisions. Unless the procedures for making decisions in ComField are efficient it is unlikely that the desired level of effectiveness in developing the types of instructional managers that are needed in the elementary schools can be achieved. However, the decision-making process cannot remain in the hands of a few individuals if the concepts of ComField are to be fulfilled. Decision making must pervade the total ComField structure and involve personnel in all aspects of the program. A guide for determining the various personnel in an organization that should be included in decision making is dependent upon the level of decision in question and who is to be influenced by it.

At least three broad levels of decision making can be identified as necessary for ComField. One level involves decision of policy. Since decisions at this level directly influence all functional operations in ComField, representation of all personnel should be included. The major impact of such decisions will be felt in the instructional program, however, and therefore calls for strong representation from this element of ComField.

A second decision level requires the designation of actions to be taken to reach goals already established. This level might be regarded as the operational level, and should involve representation from only those functional elements that are critical to the tasks involved.

Decisions at the third level can be called technical decisions and are made in terms of relating the operational decisions to the nature of the resources available. This level of decision should involve special sets of personnel as defined by the operations and resources in question.

How to organize the decision-making process in ComField must be left to the developer. One decision-making model which seems to have relevance to a wide range of ComField management related functions has been included, however, for the developer's consideration. This appears as Appendix V.

Functions Served by the Management System

The purpose of ComField is to produce graduates who can in turn produce preschool and elementary pupils with specified competencies. All of this must be accomplished to a maximum degree of effectiveness but with the least possible expenditure of resources. The management system is the mechanism charged with the responsibility for providing that these min-max limits are achieved. The management system is characterized by functions that must be served to accomplish its goals. A schematic diagram of the relationships between these functions is shown in Figure 18. The focus of each function is described below.

In reading the descriptions of functions it needs to be recognized that the model does not identify operational aspects of those functions. For example, the box labeled Policy and Adaptation indicates that the functions of establishing policy, translating policies into operational guidelines, etc. must be included if a model teacher education program designed after ComField specifications is to be developed, but, it does not indicate what organizational structure should be established nor what personnel types are needed to permit these functions to operate. All designs and decisions for operationalizing the model are to be accomplished during the developmental phase.

Instruction

The central box in Figure 18 labeled Instruction refers to the instructional program. This function is the principal focus of the ComField Management System and is responsible for directing teaching-learning interactions. Personnel, besides being responsible for managing instruction are also represented in regulatory and supportive matters of ComField. These affiliations will not be prescribed here; however, they must have strong voice in functions dealing with policy, instructional systems development, program changes, information flow, quality control, etc. All other elements of the management system are established because they are essential but supportive to achieving instructional effectiveness. Unless the instructional membership has a voice in shaping and modifying that which is designed to support its operation, little chance will exist that any high level effectiveness can result.

Policy

The policy function is the highest level decision-making process in ComField. Membership must have representation from ComField, the college, the school, professional agencies and lay persons.

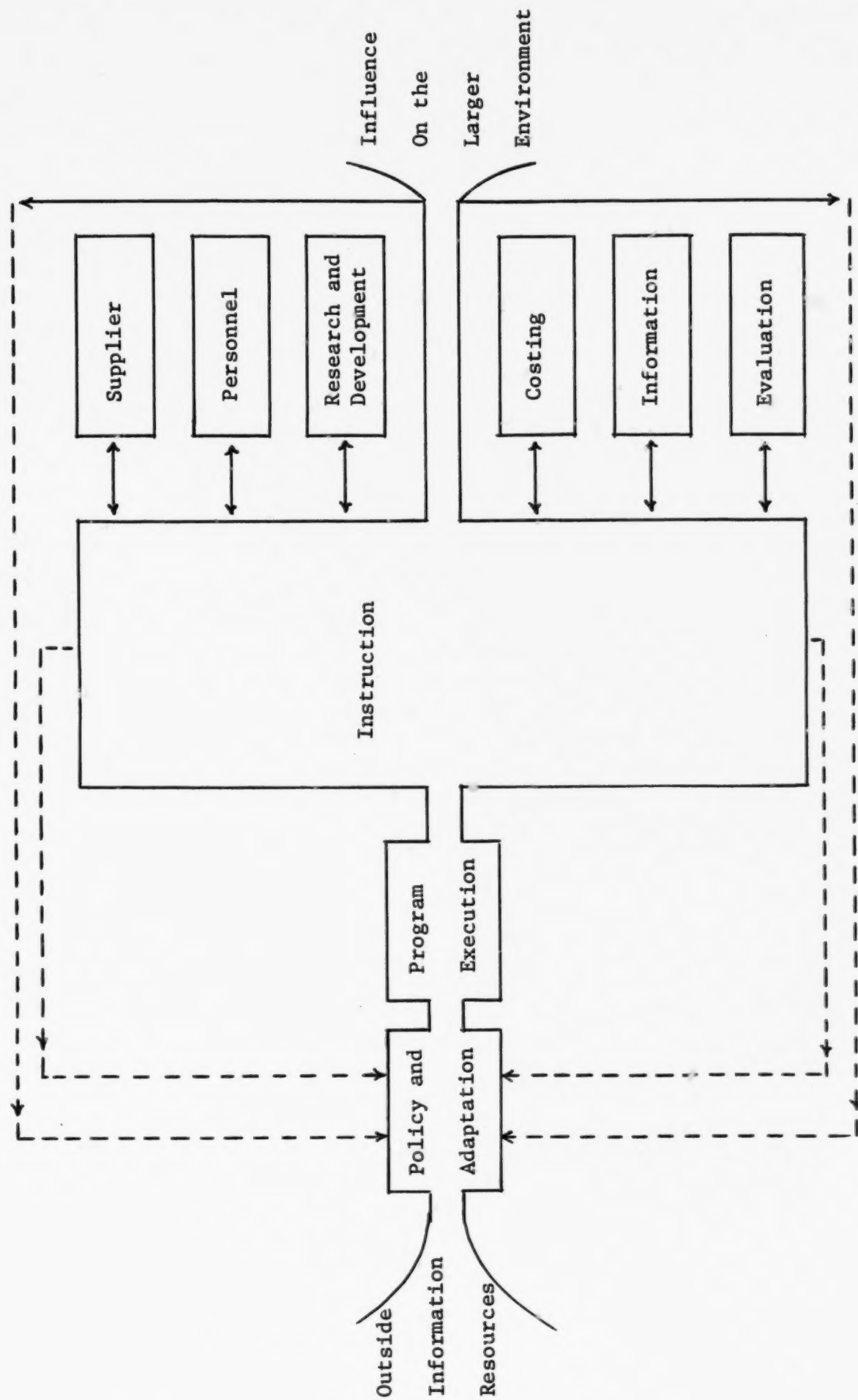


Figure 18 Schematic diagram of the ComField Management System

Energies are devoted to determining society's needs in terms of the preschool and elementary pupil, and establishing broad operational policies for ComField which will satisfy these needs.

Adaptation

The adaptive function is concerned with regulating the operation of ComField. Efforts are given to translating broad policy into operational guidelines, evaluating ComField operations, designing new and modified program operations, and carrying out inter- and intra-institutional coordination. Membership must have representation from the instructional and supportive components of ComField, as well as other professional and special resource types as are needed to carry out the functions.

Program Execution

The program execution function is responsible for seeing that policies are translated into operational guidelines then executed, and for seeing that corrective regulations be determined and expedited. This function does not imply that a single individual is needed to carry out these activities. It only states the need to have them fulfilled in ComField.

Supply

The supply function results in supplies and/or maintenance of resources necessary for supporting ComField, e.g., space, facilities, equipment, materials.

Personnel

The personnel function satisfies all personnel needs of ComField. Included are the recruitment, screening, and selecting of instructional and supportive staff as well as students. Student advisement and counseling activities are planned and coordinated with the instructional program. Staff training is designed and carried out.

Research and Development

The research and development function produces the development of new and modified instructional systems and carries out limited basic research in support of development. It provides research in support of development. It provides research and instructional development design advisement and assistance to instructional staff as needed.

Costing

The costing function provides systematic cost accounting data for all operations of ComField and makes cost analyses for the determination of cost/effectiveness relationships for various ComField functions.

The costing function may be best presented as a facilitatory mechanism in the decision-making process. As such, it must attend to (1) the major functions of ComField as they operate and influence the costing mechanism, (2) the function of management in the program as resources are allocated and expended, and (3) the processing of cost-related information vital to the management operation.

The major features of ComField which are significant to the cost function include: (a) systems of instruction as the basic unit of the instruction function; (b) instructional systems development which includes design, testing, modification, and implementation; (c) all supporting functions to instruction; and (d) the organization of the instructional program and its settings: foundations, laboratory, practicum, and continuing education phases.

To facilitate the management process in ComField, costing functions are available which assist in the systematic allocation of resources to meet program objectives.

(1) A cost accounting function provides baseline data for all program operations. This includes the costs associated with individual instructional systems, the total instructional program costs, and the resource costs needed to support the instruction program.

(2) A cost-effectiveness function provides data for making judgments concerning the costs of alternative instructional systems and their effectiveness in achieving specified program objectives. These cost-effectiveness judgments of alternatives include inter-system, intrasystem, and major program evaluations.

(3) A cost-benefit function assists in making judgments with respect to the costs of the program and the benefits derived from the program by both the individual and society. In terms of ComField, two principle impact products are defineable: instructional managers prepared by the program, and school pupils instructed by ComField instructional managers. The benefits derived from the program by both individuals and society are important types of data to compare against the resources expended in the process of preparing teachers for their role in elementary schools.

A further elaboration of the costing functions is discussed in Appendix W. This supplementary paper attempts to (1) discuss some of the issues and factors involved in analyzing system costs, (2) offer some reasonable explanation of how cost-related tools can be utilized in the allocation of resources, (3) indicate the types of information are needed in making cost analyses; and, (4) identify some of the limitations of cost-related tools as they apply to program development and decision making.

Information Transmission

The information function deals with the development and maintenance of a computer based information system capable of handling all information storage and retrieval needs of ComField. The function of this aspect of ComField services information needs of all personnel types: students, instructional staff, supportive staff and other agencies.

One of the most critical factors in the successful management of ComField will be the availability and handling of sufficient information. Such a system must have the capacity for handling the following:

1. Collect and store information on student performance and student expectancies.
2. Provide the instructional staff with information displays that identify students who are having trouble.
3. Order information about student needs so that instructional personnel can devote time to the most pressing problems.
4. Develop real time information for scheduling resources on a day-to-day basis so that they can be used in the most efficient manner.
5. Store and compile instructional system data for program effectiveness, appropriateness, and impact.
6. Combine information on student selection and retention characteristics.
7. Compile data about existing and planned acquisitions of resources to determine short- and long-range needs.

Probably one reason why the group-centered system has persisted so long in traditional teacher education is that this approach is

designed to reduce the information processing problems of the instructor. Students progress in unison toward a common time goal, are given similar assignments, and take tests simultaneously. On the other hand, in individualized instruction, all the students may be working at different points in the curriculum, probably need different faculty advising and may be taking tests at varying times. Without the backup support of a computer based information system, the individualized approach is impossible.

Two appendices are attached to the report which present different information models. One has been developed specifically for the ComField Model and provides an exemplary system designed to handle the essential information requirements of the model. The other presents an example of an operating information management system in a large metropolitan public school system. These appear, respectively, as Appendices X and Y.

Evaluation

Since ComField is designed as an adaptive-corrective program, it must possess the means for being responsive both to emerging problems and changing needs. One of the factors that is critical to the success of such a design is the capability for determining how effectively its purposes are being achieved. The means for making such judgments depends upon a comprehensive system of evaluation; one that will provide data on the nature of outcomes and on the operations that were designed to elicit those outcomes. Equally important is the speed by which such evaluations can be provided; i.e., the information must be available at the time that changes are needed, not months or even years later.

Scope of Evaluation Function. The evaluation function involves the gathering of data to satisfy questions of how effective and appropriate the outputs of ComField are as well as the impact that they make. As used here, effectiveness is concerned with determining how well ComField accomplishes the purpose for which it was created; appropriateness is concerned with determining whether the objectives of ComField are valid, that is, whether they are serving the needs for which they were established; and impact is concerned with estimating the effects of ComField on the larger environment in which it exists. Parallel examples would be: "Can those trained in the program demonstrate the behaviors for which the training was intended?"; "Can teachers so trained deal effectively with the realities of the environment within which they act?"; and "What are the effects of ComField on other teacher training institutions or on public school graduates as they go on into high school?"

The ComField evaluation system must possess three major characteristics: (1) the capability for making observations of the total program's operations and outcomes, (2) the capability for appraising these observations in terms of a given set of standards, and (3) the means for providing evaluation outputs. The term operations is defined as those actions, transactions or means by which ComField goals are reached, and includes all human and nonhuman resources. Outcomes are defined as the products, artifacts or consequences that come about as a result of the program's operations.

1. Observation capabilities. In its most global meaning, an observation in ComField is defined as the act of describing a given object or event or set of objects or events. Such observations are both static and dynamic in nature. Static observations describe the relative position(s) of an operation with respect to a defined goal and provide the basis for determining the adequacy of the operation. Dynamic observations describe movement of an operation(s) in terms of a defined goal and provide the basis for surmising the causal relationship between an operation(s) and the defined goal.

Evaluation questions arising in ComField about its operations and/or outcomes are the precipitators of observations. In order for the evaluation function to accomplish appropriate observations, two major competencies must be possessed. First, the evaluation questions must be analyzed to determine what types of data elicited from which objects and/or events will be relevant to answer the questions. Second, the form of the measures required to gather the types of data defined above must be identified. In education the formal methods for obtaining descriptions of objects or events have been characterized by obtrusive measures, which includes interviews, systematic observation, standardized objective measure, standard projective measures, and teacher made tests; and nonobtrusive measures, which includes physical traces, documents and products, simple observations, and contrived or hidden observations. A review of the major classes of measures used in the behavioral sciences appears as Appendix Z. However, observations must not be regarded as being limited in any way by present measurement methodologies. The forms by which such observations will be made in ComField must be determined by the nature of the object(s) and/or event(s) to be described.

2. Appraisal capabilities. Once observations have been obtained on relevant objects and/or events, these data must then be related to the standards that have been established to determine the degree of congruence between observations and standards. The very fact that there must be standards calls for preplanning in ComField of a type that has seldom been undertaken in education. Without some

formal evaluation basis for comparison however, the adaptive-corrective capability of ComField can never achieve any power. An example of a model for preplanning curriculum evaluation is presented by Stake.¹ Though the model is designed for curriculum evaluation, it can be generalized to the evaluation of all other functions of ComField.

3. Evaluation outputs. Any appraisals that are made must have a consumer. The only purpose for making an evaluation is to provide information to individuals by which they can make better decisions than would otherwise be possible regarding their subsequent actions. The quality of their continuing actions, however, is dependent upon the nature and form of the evaluation information they receive. The following factors must be considered:

- (a) the cruciality of the data in representing that which has transpired,
- (b) the accuracy of the data,
- (c) the sensitivity of the data indicators to their referents,
- (d) the timeliness of the data,
- (e) the manageability of the data, and
- (f) how well the data are blended with the standards for conversion into decisions.

Unfortunately the requirements for evaluation outputs do not remain constant across all consumer types. Consumers differ from one from another in their evaluation needs, which in turn calls for variable degrees of difference in evaluation outputs. For example, students are able to utilize certain evaluation outputs in a form that must be quite different than the form that would be appropriate for the instructional systems developer or the policy maker. The point is that to provide effective outputs, the evaluation function must be as concerned with who is to receive the data as with what their data needs are.

Evaluation: a spiralling process. A single act of evaluation in ComField will never stand as a closed entity. Rather, it will prompt subsequent modification or correction, which in turn must also be evaluated. This concept is central to the adaptive-corrective nature of ComField. Figure 19 attempts to depict this spiral process.

¹Stake, Robert E. "The Countenance of Educational Evaluation." Teachers College Record. April 1967.

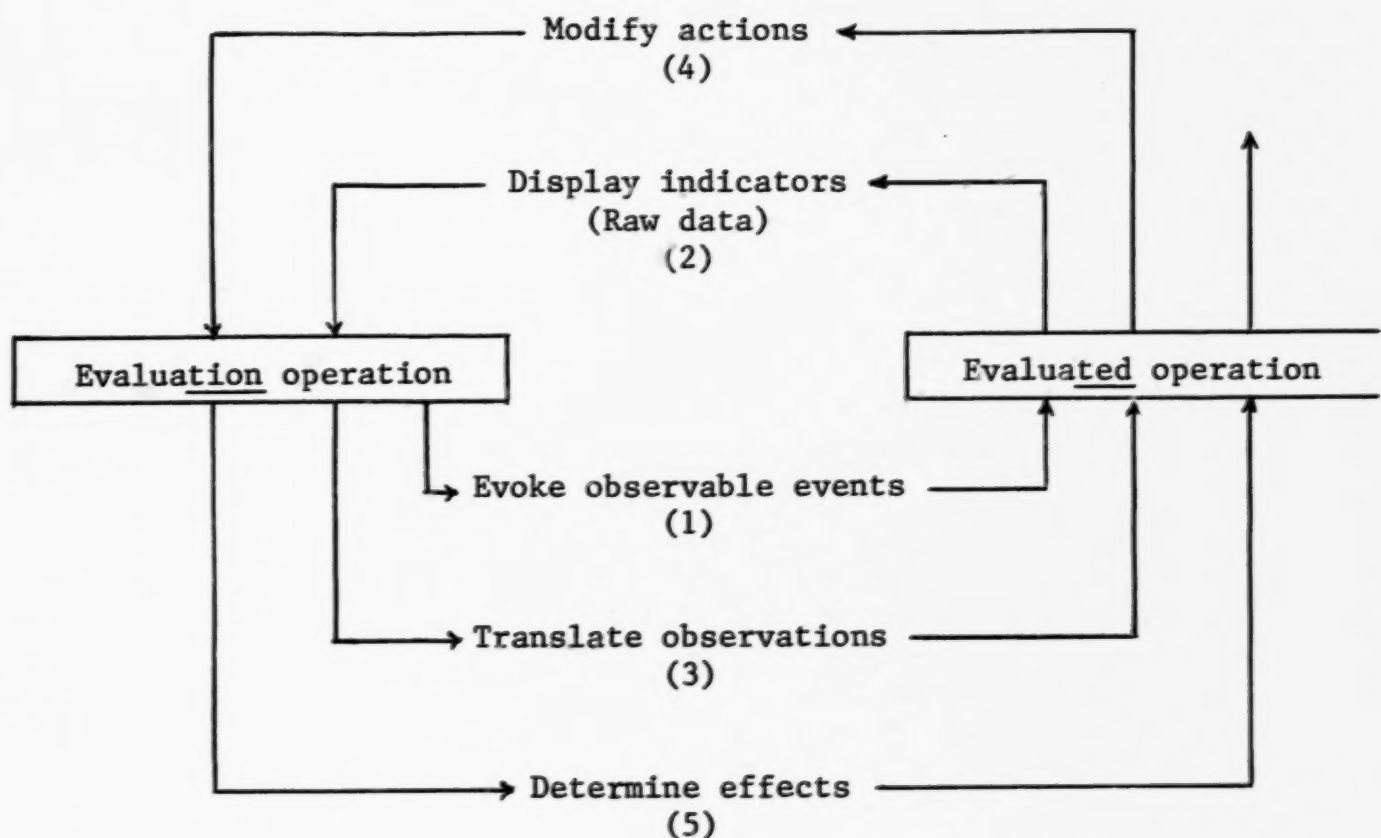


Figure 19. Evaluation as a spiralling process.

The start point (1) in Figure 19 calls for the designing of indicators that will be appropriate to eliciting the observable events. Implicit here is the understanding that evaluation questions have already been posed from which instruction designs can be determined. The next stage (2) indicates that data have been collected. This leads to (3) the translation of the data from observations into meaningful outputs to the consumer. On the basis of the evaluation the consumer makes modifications (4) to the operation which leads to (5) a new evaluation cycle of the modified action.

Relationships Between Functions

Obviously, the ten functions of the ComField management system discussed above will not operate independently of one another. Each must relate to the others in ways to enhance the purpose of ComField. For purposes of illustration, the interrelationships between the regulatory and instruction functions will be examined. This relationship is shown schematically in Figure 20.

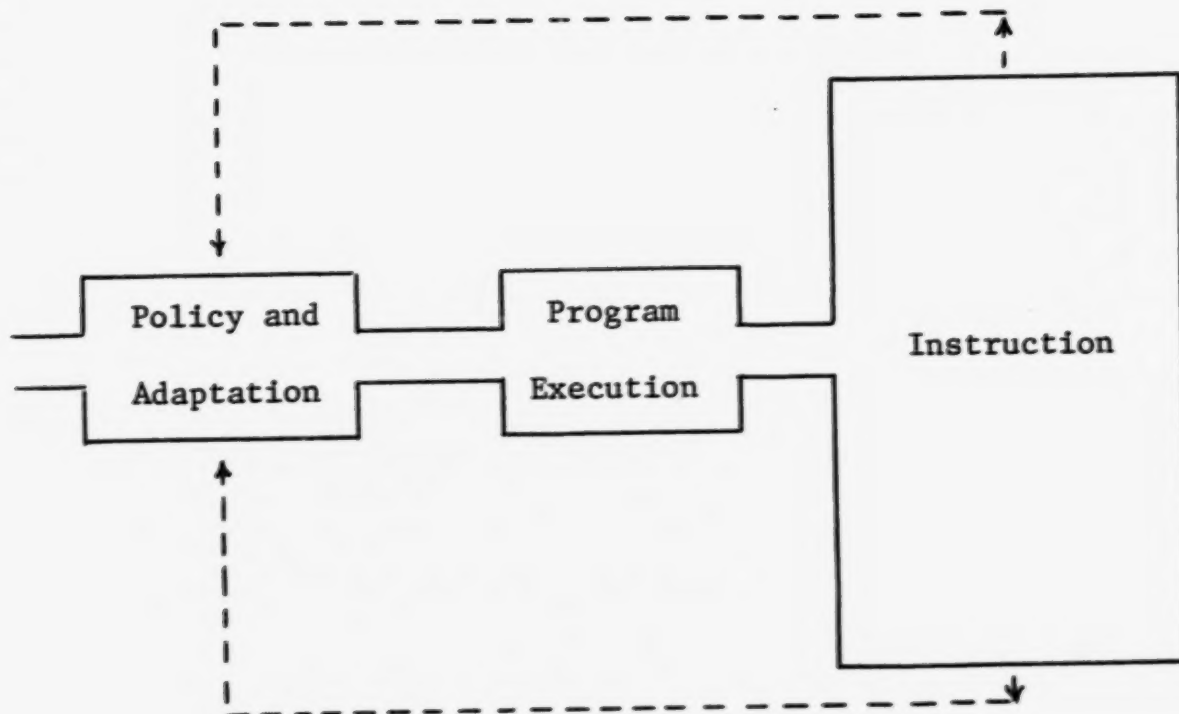


Figure 20. A schematic of the relationship between the regulatory and instruction functions.

ComField policy is established by combining both outside information with major inputs from instruction. Policy is translated into instructional guidelines by the adaptation function, which gives careful attention to feedback from instruction. Program execution implements operational decisions of adaptation and serves to coordinate policy, adaptation and instruction functions. Instruction represents the major focus of all other ComField functions. Program execution must insure that instructional values and operational outcomes are continually fed into policy and adaptive functions.

The Scope of the Management System

Thus far very little has been said with respect to the jurisdictional limits of the management system. In global terms, the management system includes both the elementary school and the college. The functions set forth in Figure 18, are not reserved in any way to just the college. Since the ComField concept integrally includes both the elementary school and college in instructional involvements, so too are these institutions encompassed by the management system.

The implications of this statement are vital to the success of the ComField model. For example, by the very fact that preschool

programs or elementary schools are a part of ComField indicates that they must assume both an operational responsibility and a voice in the direction of the program. In terms of Figure 18, they must be appropriately represented in all functions of the management system to the extent that such involvement is meaningful to ComField success. Keep in mind that no operational specifications are intended by these statements. These specifications are only prepared as broad guidelines to develop the operational designs. It is neither appropriate nor possible at this time to speak to the means for establishing this school-college relationship in the program beyond those specifications already given, other than to state that it must come about. Such relationships will undoubtedly call for careful and patient study on the part of both college and school people during the subsequent developmental phase of the model teacher education project.

The implications for involvement of other outside agencies in ComField such as the State Department of Education, professional associations and other social institutions is not at all clear at this time, but must also be studied. It seems obvious that in the years ahead programs to train teachers must, at the very least, establish systems to carefully monitor information coming from such outside agencies. Even more, there will probably be need for various operational relationships between many agencies in the larger environment if, for example, the policy and corrective-adaptive functions of ComField are to be properly carried out.

Again referring to Figure 18, note the extreme left and right elements of the diagram. The symbol at the left indicates that the management system must be sensitive to information resources from outside ComField. This information must be inputted to all functional elements of the system. Whether this information is sorted and dispenses through a routing operation or left to flow directly into a particular function is an operational decision and need not be a concern at the moment.

The far right element in Figure 18 focuses on the influence of ComField on the larger environment, and as such involves all functional elements of ComField. Obviously the primary influence will occur from the effects that instructional managers have upon elementary pupils. However, other influences can be anticipated such as the ComField system design upon other institutions (both educational and other), outside agency interrelationships independent of ComField as a result of ComField contamination, etc.

The fact that the ComField management system is required to manage the instructional program as it overlaps both the college and public schools calls for a charter that would insure some form of

management controls across all involved institutions, but still protect the fundamental interests of each participating institution. Obviously, no written agreement for the establishment of a controlling management system could hold up against individual institutional considerations should any of the cooperating institutions face internal problems through support of management decisions. Every participating institution possesses direct control over its own operation; any disorders or new directions are the prime responsibility and prerogative of the institution. But such authority and power cannot be given by any institution to the ComField management system. Only trust and confidence can establish the authority of the management system so firmly that it never fears the absence of this legal power.

Success in the ComField management system will undoubtedly rest ultimately upon personalities: instructors, program managers, policy setters, systems designers, etc., must develop confidence in the ComField Management concept and in the organization and leadership by which the management system is exercised. No binding agreements can apply to all its parts -- only a highly developed sense of mutual confidence can meet the demands of the task.

A COMPETENCY BASED, FIELD CENTERED,
SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

PART 3.

FACTORS TO CONSIDER IN IMPLEMENTING
A COMFIELD BASED TEACHER EDUCATION PROGRAM

FACTORS TO CONSIDER IN IMPLEMENTING A COMFIELD BASED TEACHER EDUCATION PROGRAM

H. Del Schalock

Assuming that some institution(s) will consider the adoption of the model, there is an obligation to spell out as clearly as possible the factors that should be weighed most carefully in making such considerations. On the basis of eight months of work and discussion, four factors seem most critical in this respect: 1) commitment to the development of such a program, 2) the availability of the kinds of resources needed to implement it, 3) ability to create and live within the new management structures required for its function, and 4) the availability of time to get it started.

Commitment

It is fair to say that a decision on the part of staff within a teacher education program to adopt the ComField model in its entirety would markedly alter their professional lives. Moreover, it would markedly affect the lives of students, the lives of others in the college or university and the lives of colleagues in the public schools. With implications of this magnitude it is critical that all persons influenced by the decision have a part in making it.

Resources

When first considered, the apparent resources needed to implement a ComField based teacher education program seem staggering. Instructional staff need to be added that have new skills; school personnel need to be added that have new functions; and highly skilled people need to be added to carry out research and evaluation functions. In terms of the nature of the resources that now exist in teacher education programs these demands are great, but in terms of the increase of resources in any absolute sense they may not be so great as first appears. Instruction within the Foundations and Laboratory phases of such a program is designed to free the college instructional staff from their traditional role of information givers, and as such will permit them to direct their energies elsewhere. In part, of course, these energies will be directed to new foci within the curriculum, and in part to the assessment, diagnosis and prescription function that becomes so critical with individualized

instruction, but to a large extent these energies can be devoted to other than instructional activities. Operationally, this means that some of the resources needed to perform the support functions within a ComField based program can be found in existing faculty.

Two other considerations help offset the apparent demand for new resources to operate such a program: 1) a major responsibility for instruction in the Practicum phase of the program will be assumed by participating early childhood and elementary programs, and 2) once a pool of effective instructional systems has been developed, research and development costs will go down. This does not deny the heavy investment needed in research and development activities to launch or maintain a ComField based program, or that required to prepare participating school personnel to assume a functional role within it, but it does suggest that there are trade-offs that are not apparent on first reading that serve to lessen resource needs.

Adaptability

Persons involved in a ComField based program will be required to enter a variety of roles and relationships, and be responsible for a number of functions, which will be relatively new to them. New skills will be demanded of both instructional and support staff; instructional staff will link closely to management, for example, in setting program policy and developing instructional systems; management will involve college, school and community representation; and a charter based on mutual trust and confidence between participating schools and colleges. Undoubtedly, entry into such an arrangement will create anxiety and upset. To the extent that the people and institutions involved are adaptable, however, there is hope of success. To the extent that they are not the implementation of such a program is jeopardized.

Time

Considering the commitments and resources needed, the initiation of a ComField based teacher education program requires considerably different lead time than does a shift from one curricular emphasis to another within a traditional program. It takes time, for example, to establish the functional relationship that ComField requires between college and participating schools, or to prepare staff to man the program, develop and test instructional systems,

establish the computer based information management system, etc. It also takes time to get support for the program from other professional agencies, legislatures, and the public at large. Given this fact persons attempting to establish such a program need to be aware of the probable necessity of maintaining an ongoing program while directing the creation of the new one.

From all that has been said it is obvious that the adoption of the ComField model will not simplify the lives of those responsible for the preparation of teachers. Nor will it simplify the lives of students planning to become teachers. The complexity of the model, the demands it makes upon those participating in it, and the unknown pitfalls it contains establishes it as a harsh mistress; it will not be surprising to find people pausing when they consider its adoption. Yet with all of its complexity and uncertainty there is an invitation in the model. There is a power and an order and a logic that excites, and there is a vision of an end that could bring to teacher education the wherewithall to do that which it aims to do. There is, in short, a venture to be pursued with ComField, provided one has the time, the resources, the commitments and the courage to do so.